Afghan Education

Basic Competencies of Learning in Mathematics

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Mathematics Scope and Sequence Chart

Math Concepts	I	II	III	IV	V	VI
Place Value	Pre number Concepts Tens; 1 – 99	Hundreds 100-999	Thousands 1000-100,000	Millions 7 Digit Numbers Add. and Sub.	Billions 8 - 10 digit numbers Add. and Sub.	Trillion 10 - 13 digit numbers Add and Sub.
Addition and Subtraction	Addition & Subtraction of 1 - 99 and zero without carrying and borrowing	Addition & Subtraction till 999 and zero with carrying/borrowing up to tens	Whole numbers w/wo borrow & carry Repeated addition	Review of multiplication Table		
Multiplication and Division			Multiplication and division by 1 to 9 and zero	Multiplication & division by 10s, 100s, 1000s without decimals Multiply/Divide numbers by 2, 3 and 4 digit numbers	Review multiplication and division	Review multiplication and division by 10s, 100s, 1000s with decimals
Fractions	Color 1/2 and 1/4 of figures	Matching fraction 1/2, 1/3, 2/3, 1/4, 2/4, 3/4 with figures	Identification of fraction (1/2, 1/3, 2/3, 1/4, 2/4, 3/4, 1/5, 2/5, 3/5, 4/5) with figures	Proper fractions Same denominator Compare Add Subtraction	Fractions Four operations: add, subtract, multiply and divide	Conversion of fractions to decimals and vice versa Compare
Decimals					Multiply/divide by 10s, 100s, 1000s with decimals Compare, add and subtract	Decimals Four operations: add, subtract, multiply and divide Ratio Percent
Measurement	Comparison of short and long, big and small and thick and thin	span, foot, steps compare capacity of containers Time; months, days and hours	m, cm, kg Hours and minutes	Multiples and parts of km, hm, dm, m m, dc, cm, mm Conversion without decimals	Multiples and parts km, hm, dm, m m, dc, cm, mm Conversion with decimals	Review perimeter in m, dc, cm, mm Review area of circle, triangle, rectangle and square in m^2 ,dc^2 cm^2 mm^2
Money/Calendar	Coins and bills up to 100 Afs.	50 Afs, 100Afs And 500 Afs.	Review of 50, 100, 500 1000, 5000, 10,000 Afs Solar Calendar	Lunar Calendar	AD Calendar	
Geometry	Identify like and unlike shapes of circle, square, triangle, rectangle	Identify name and count shapes of circle, square, triangle, rectangle	Sides of triangle, square and rectangle Introd. to perimeter	Perimeters of triangles, circles, squares, rectangles Areas of squares, rectangles and Triangles	Areas of triangles, circles, squares, rectangles m^2 & cm^2	Volume of cubes, rectangular cubes and cylinders in m^3 , cm^3

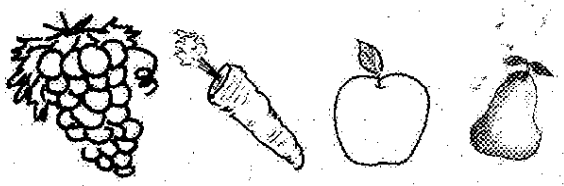
Class One Math

Pre-Number Concepts

Color

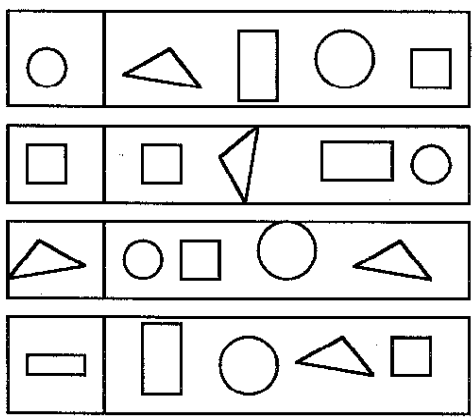
The children will be able to

1. Identify the following colors:
   - Red, yellow, blue, green, orange, purple, black, white
2. Name the colors
3. Color the following figures; the apple red, the pear green, the carrot orange and the grapes purple.

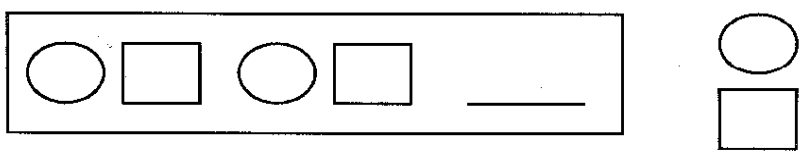


Shapes

4. Circle the same shapes

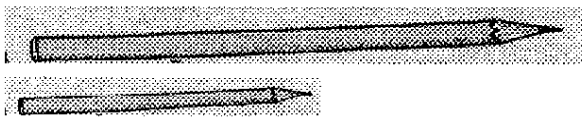


5. Complete the pattern

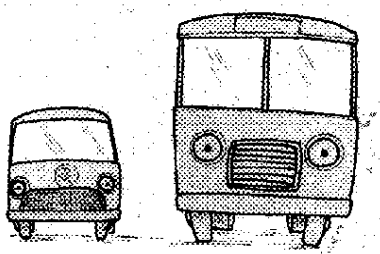


Size

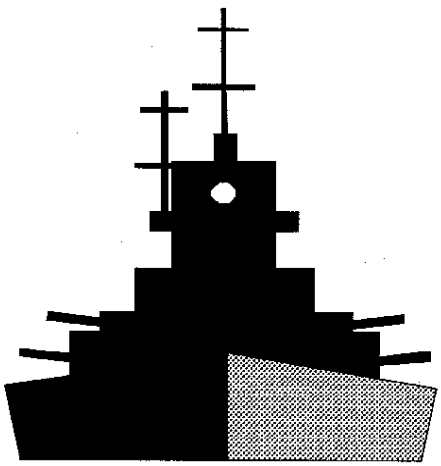
6. circle the longer object

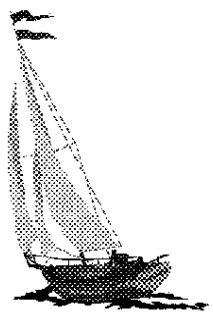


7. circle the bigger object



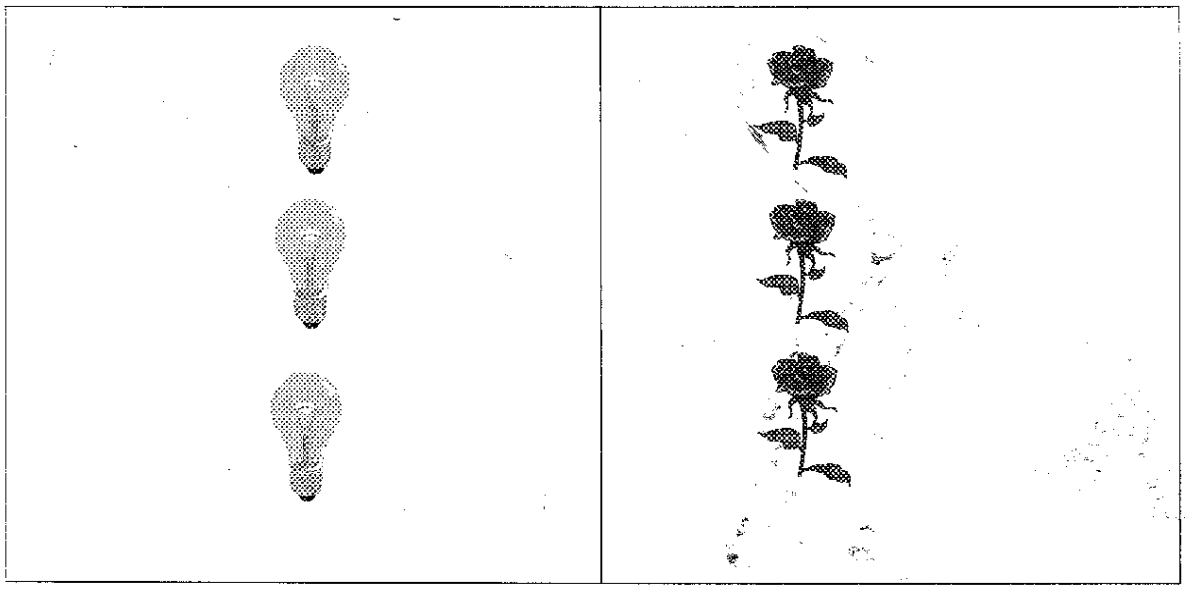
8. circle the lighter object



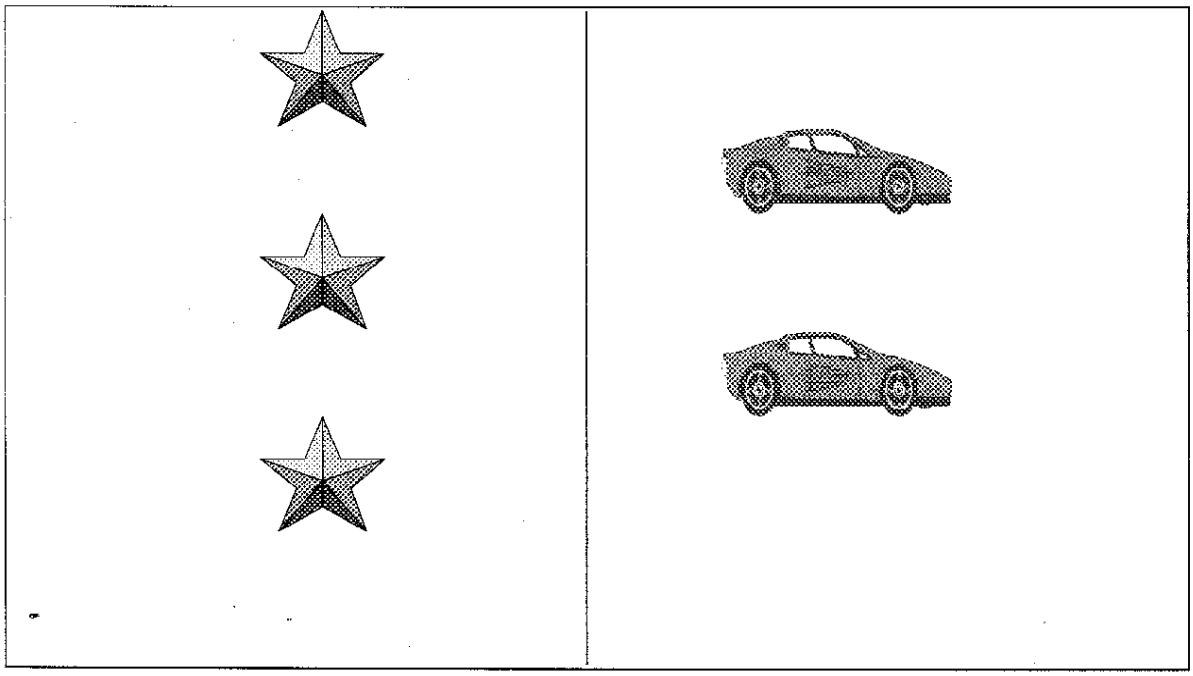


Number Concept

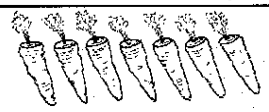
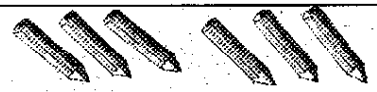
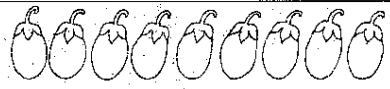
9. Match the objects and circle the objects that are equal:



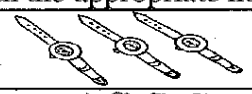
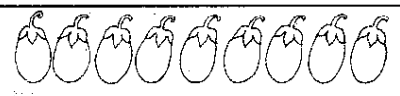
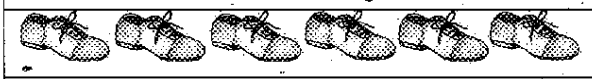
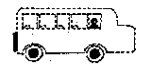
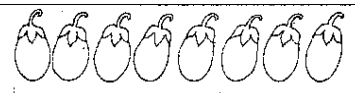
10. Match the objects and circle the objects that more;



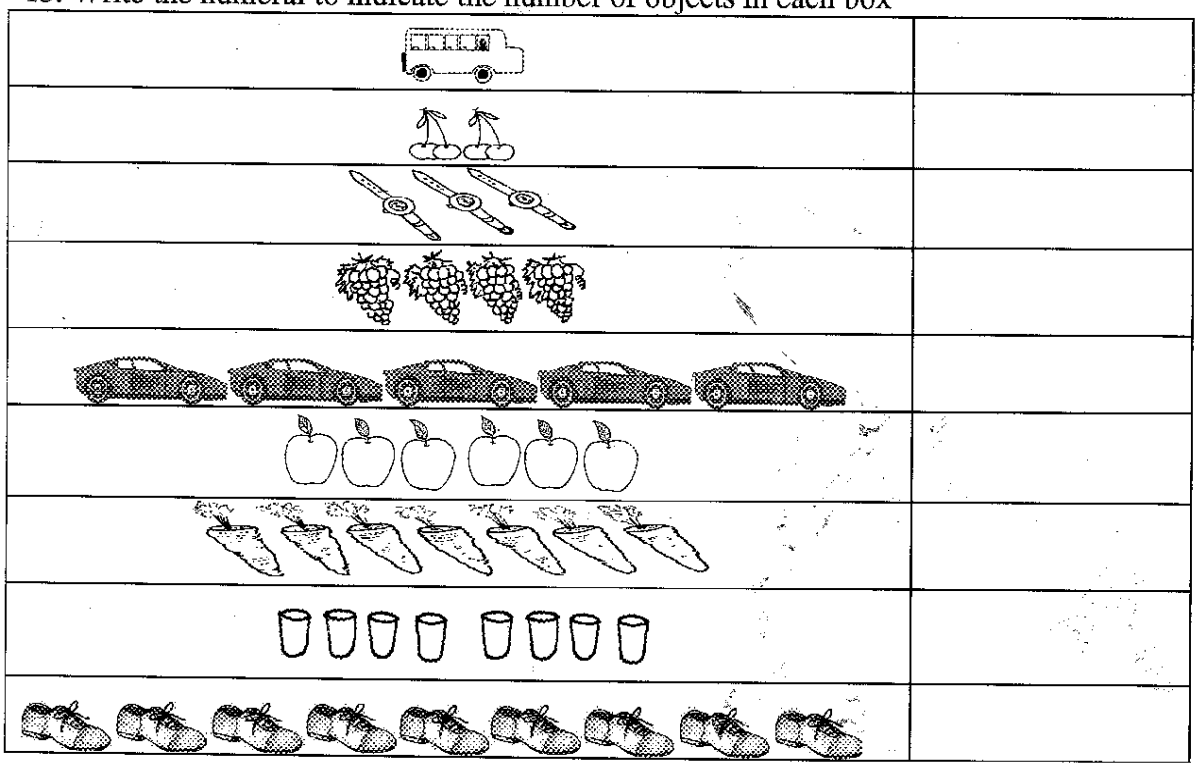
11. Count the objects in each box and indicate the number by drawing circles

	● ●	2
		3
		1
		5
		7
		6
		9
		4
		8

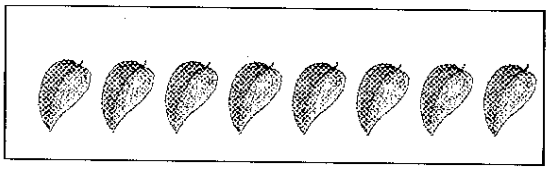
12. Match the object with the appropriate number

	2
	6
	7
	5
	3
	9
	8
	4
	1

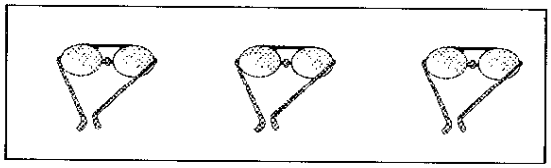
13. Write the numeral to indicate the number of objects in each box



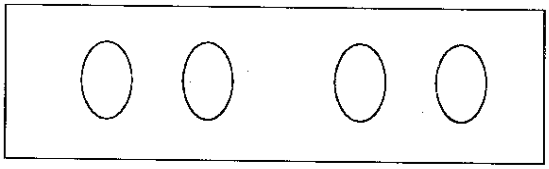
14. Circle the numeral to indicate the number of objects in each box.



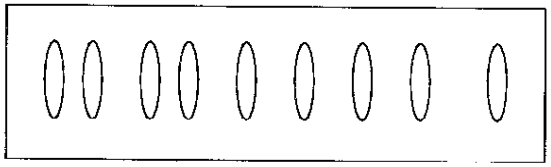
3 6 8



3 8 1



9 6 4



9 7 2

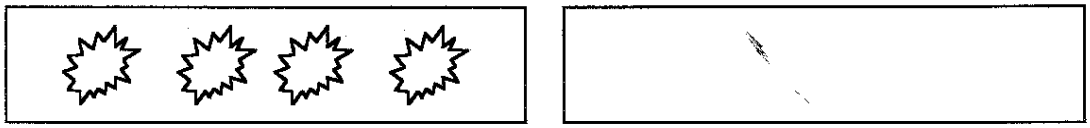
15. Write the missing number in each box:

1	2		4		6		8	

16. Compare the two numbers by using this symbol >

8 ☐ 5 3 ☐ 6 4 ☐ 9

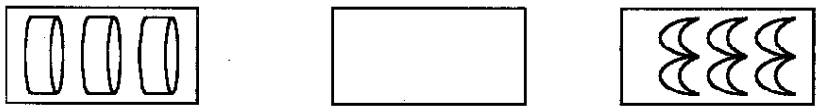
17. Circle the box that has no objects;



4 0

18. Write the numeral to indicate the number of objects in each box:

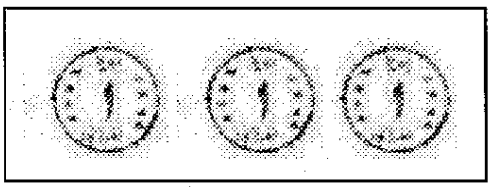
____ ____ ____



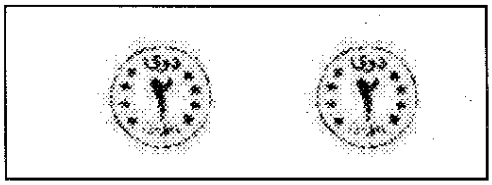
____ ____ ____

Money

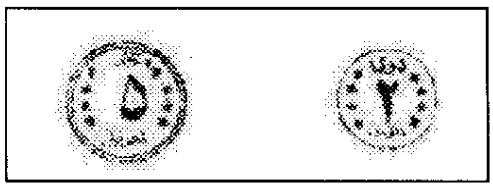
19. Add and wriite the sum of the coins in the box:



Afs. _____

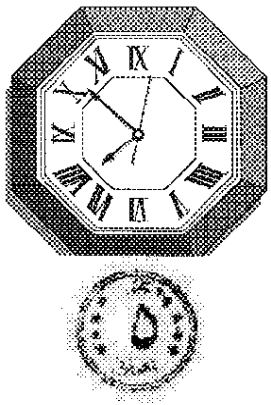


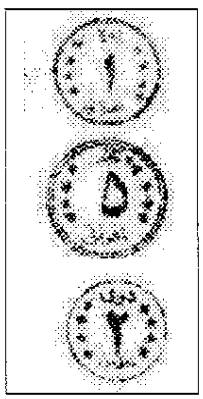
Afs. _____

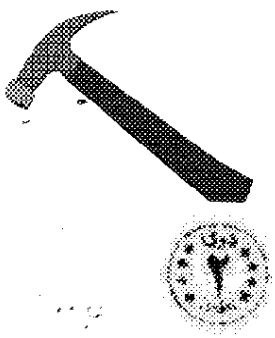


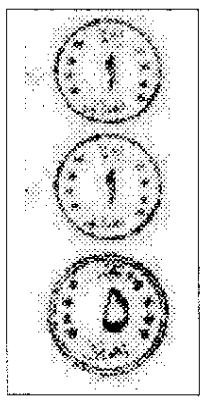
Afs. _____

20. Match the price of the object with the appropriate coins





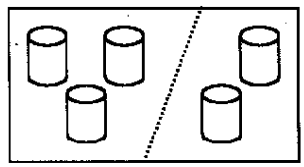




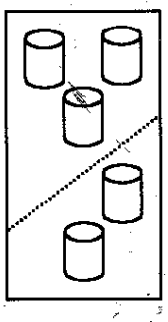
Addition

Children will be able to

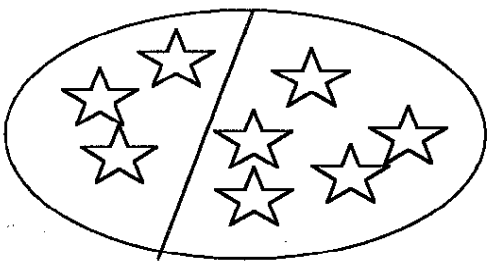
21. Recognize the symbol + and add:



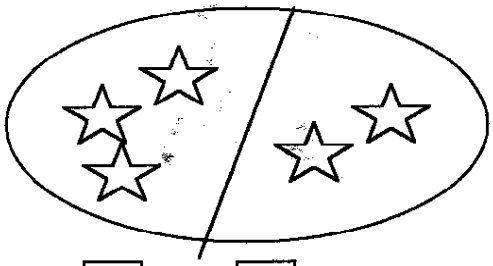
3 + 2 = ☐



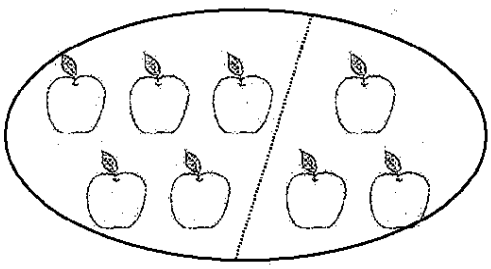
3
+2
☐



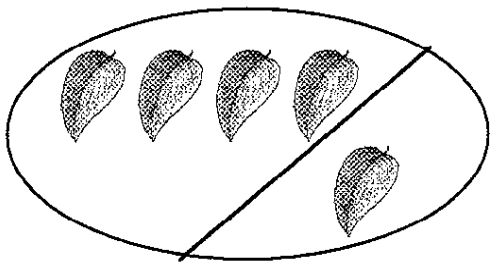
☐ + 5 = ☐



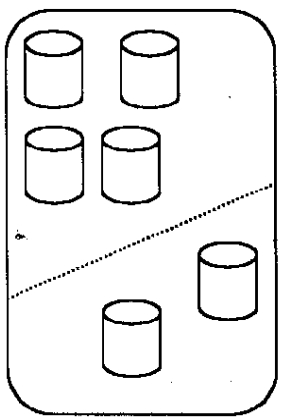
☐ + ☐ = 5



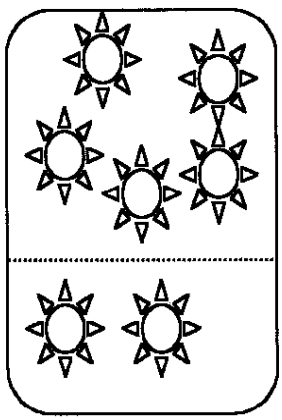
☐
+ 3
☐



4
+ ☐
☐



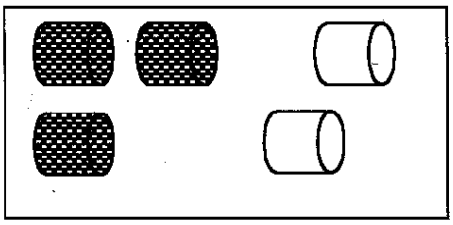
☐
+ ☐
6

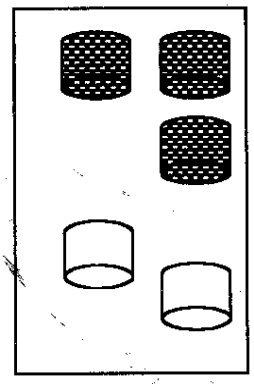


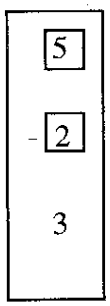
☐
+ ☐
☐

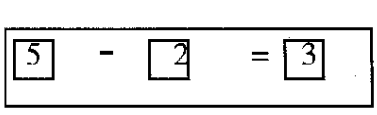
Subtraction

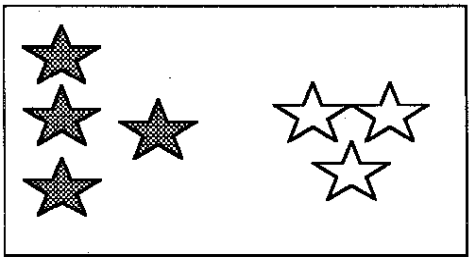
22. Recognize the symbol - and subtract

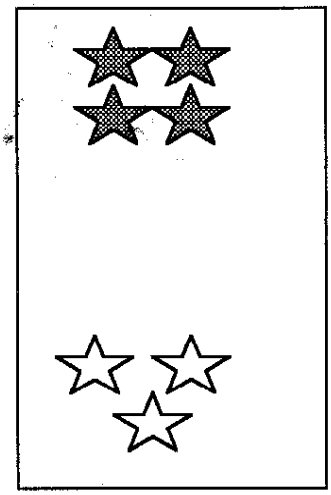


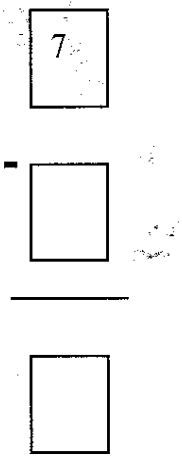


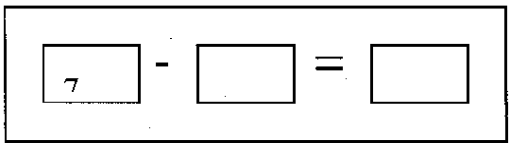


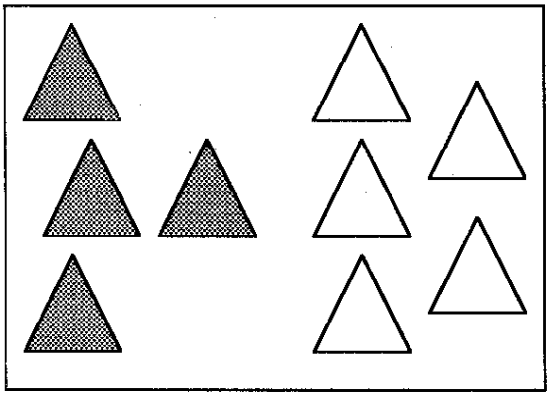


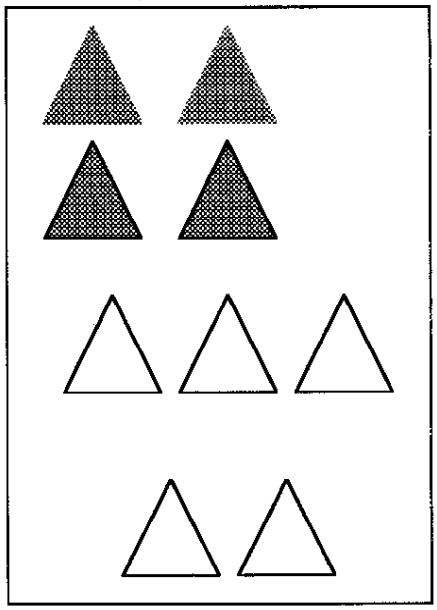


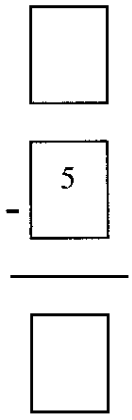


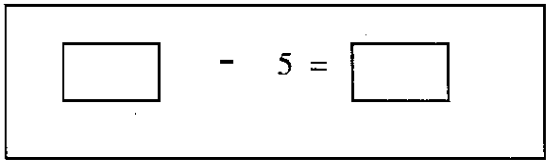






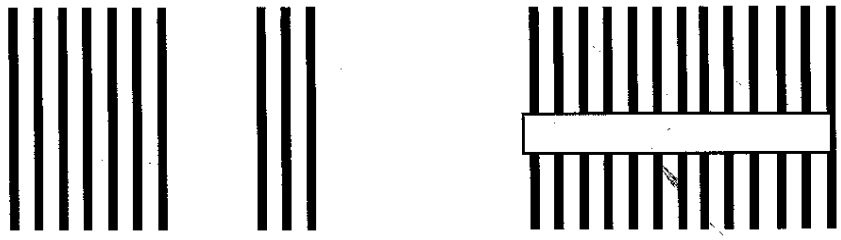






Tens

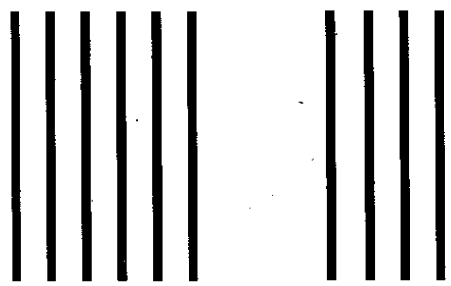
23. Add and write the numbers as shown in the example

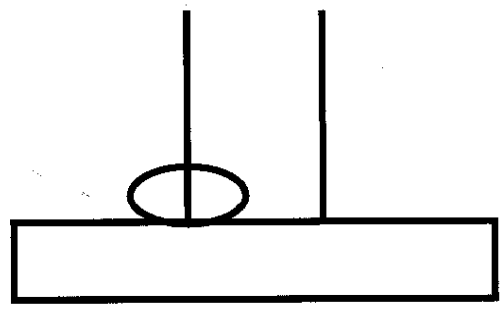


7 + 3 = 10

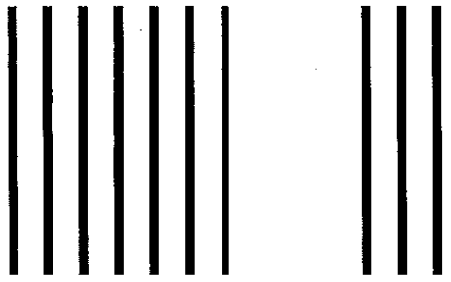
____ + ____ = ____

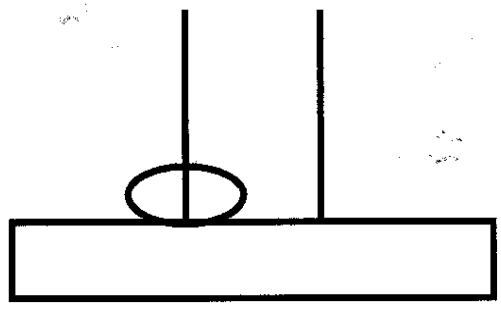
24. Add and write the ten on the abacus

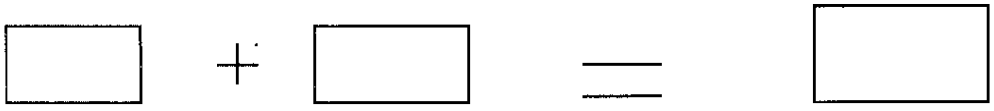




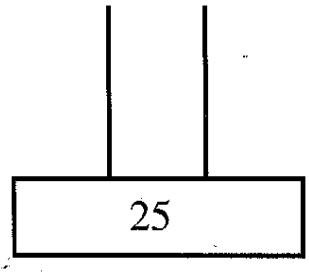
6 + 4 = 10

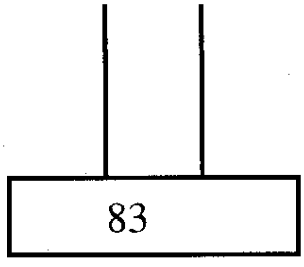






25. Draw the shown number on the abacus:





26. Fill in the missing number;.

25					30			33

27. Recongnize the bills and write their numerals;

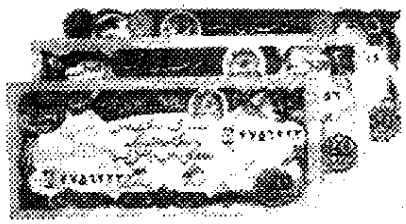
Afs _____

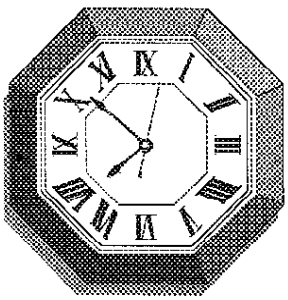
Afs _____

Afs _____

28. Match each object with the bill that shows the price.

30 Afs.

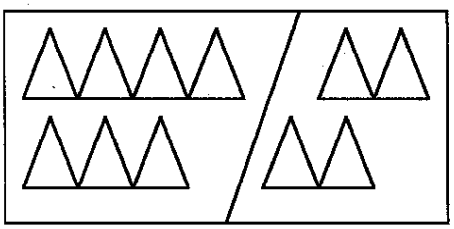




50 Afs.

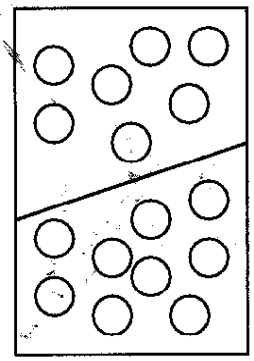
Addition of Numbers with Tens

Add Numbers in the tens Place without Carrying



7 + 4 = 11

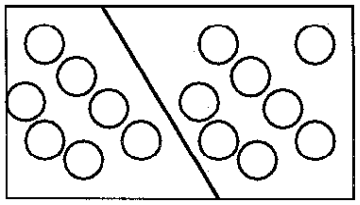
4 + ☐ = 11



7 + ☐ = **15**

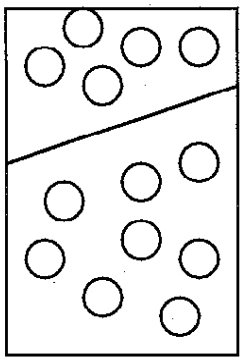
9 + **7** = ☐

Add:



7 + ☐ = ☐

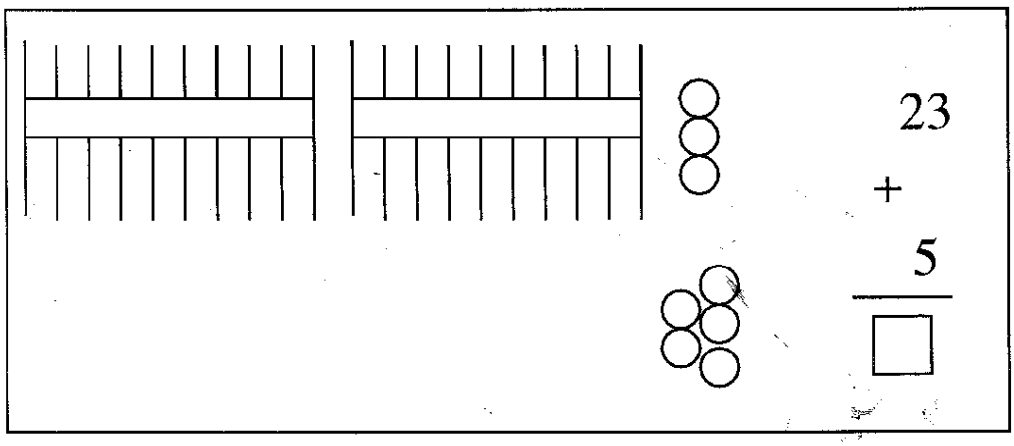
8 + ☐ = 15

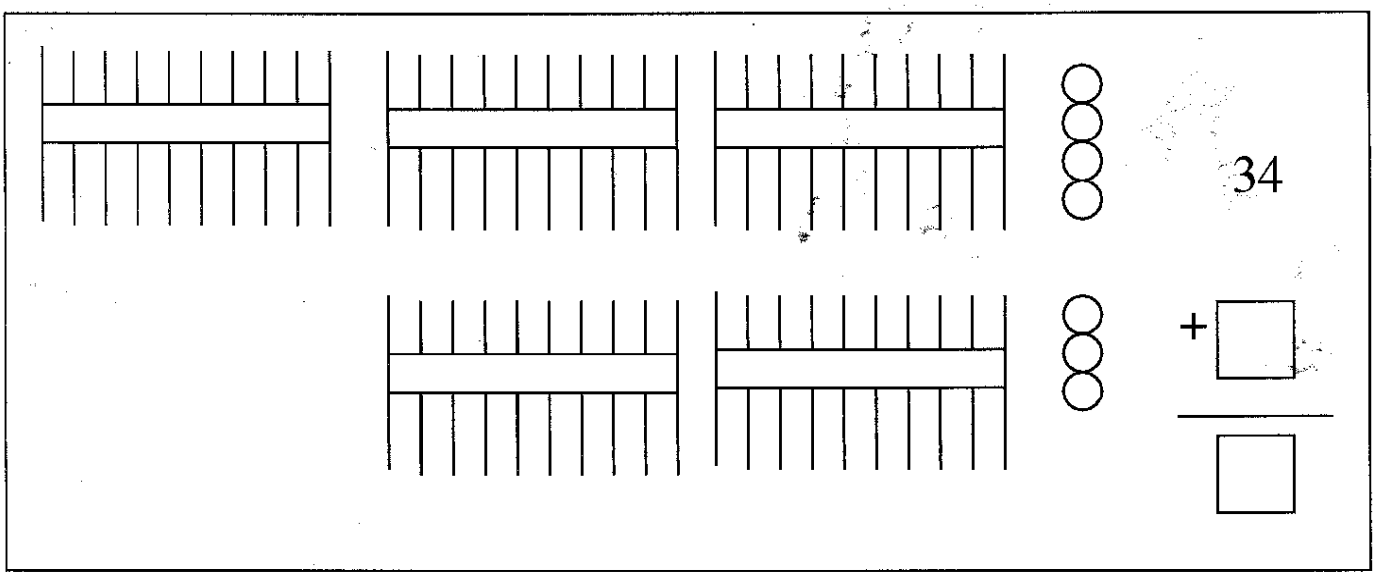


5 + ☐ = 13

☐ + 7 = 13

29. Add:

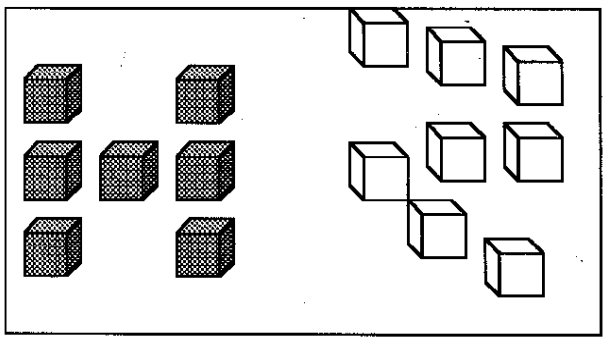




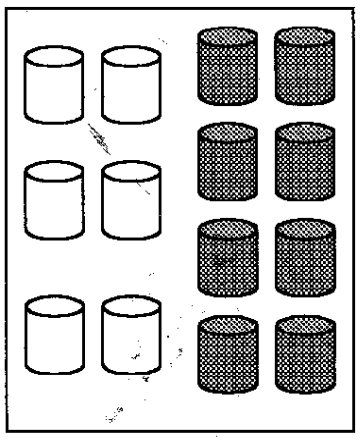
57	61	84	75
+ 12	+27	+15	+13

Subtractions

Subtract Numbers in the Tens Place without Borrowing

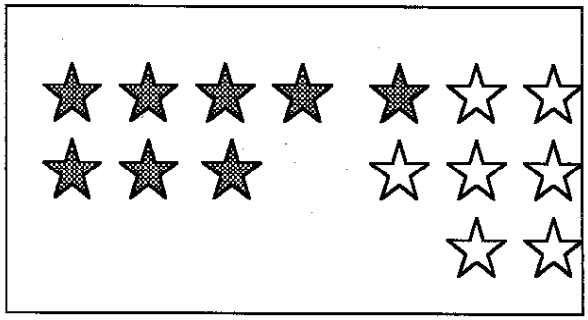


14 – 8 = 6



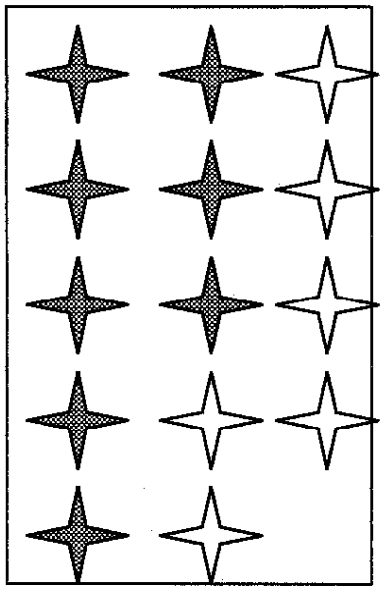
14	14
– 8	– 6
6	6

30. Subtract



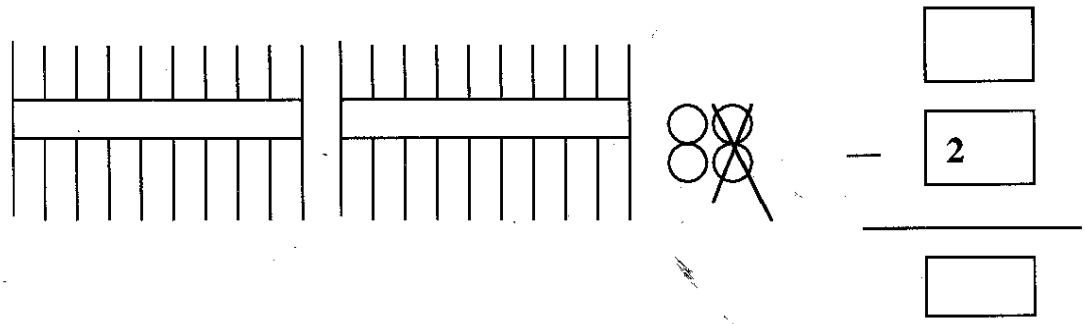
15 – ☐ = ☐

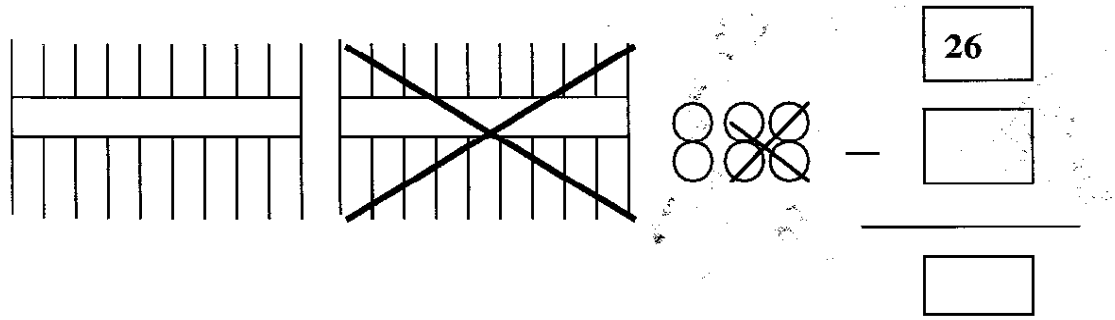
☐ – 7 = ☐



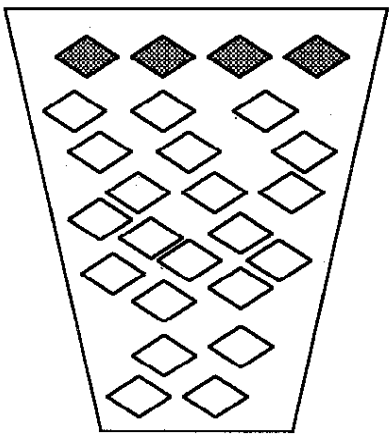
15	☐
– ☐	– ☐
☐	8

Subtract:





Solve the following problem



How many shapes are in the basket? ☐

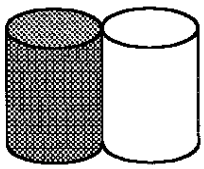
4 shapes are taken away ☐

How many shapes are left? ☐

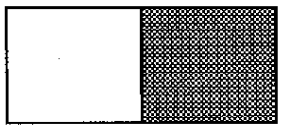
89	76	53	97
– 4	– 23	– 31	– 45
_____	_____	_____	_____

Fractions

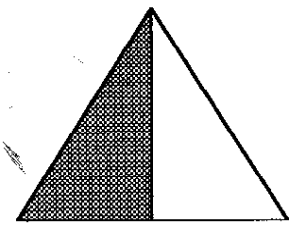
Identify the fraction of the following figures:



$\frac{1}{2}$

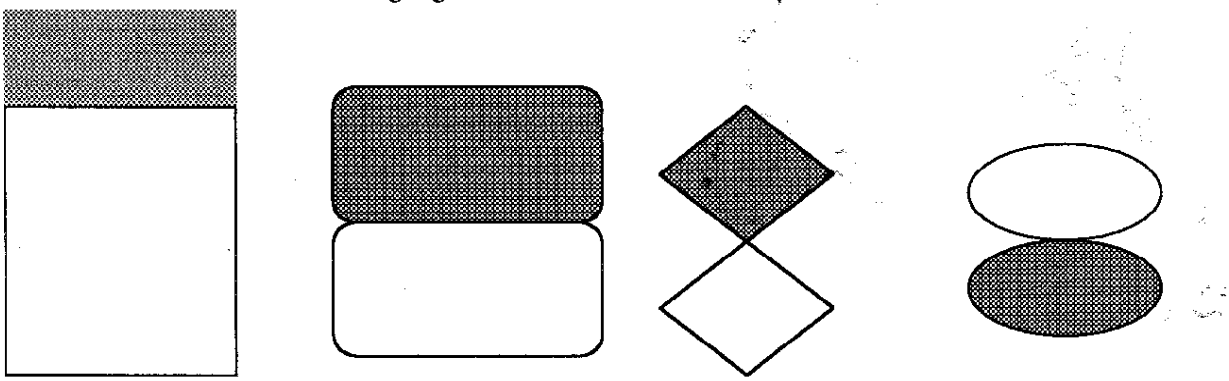


$\frac{1}{2}$

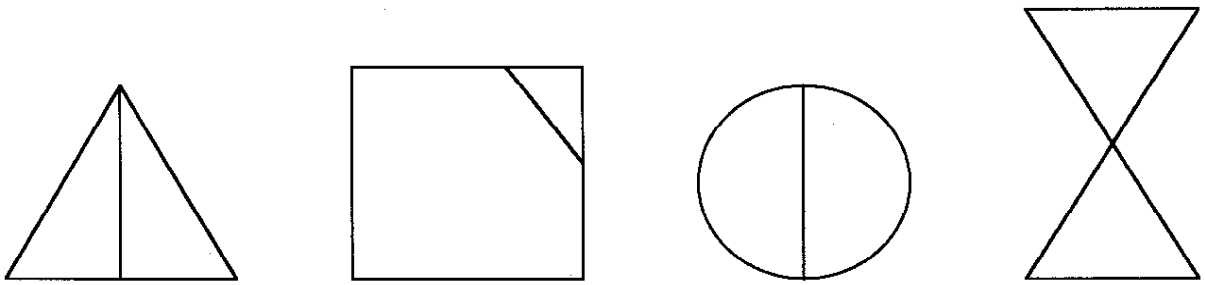


$\frac{1}{2}$

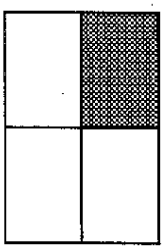
32. Circle 1/2 in the following figures:

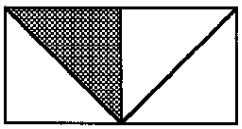


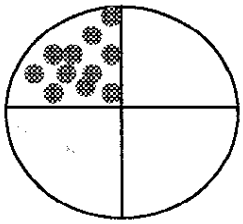
33. Color 1/2 of the following figures:



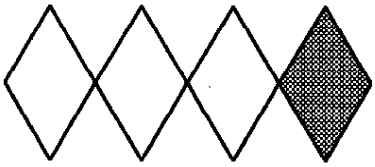
Identify the fraction 1/4 in the figures:

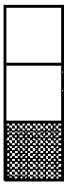


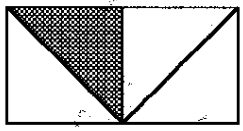


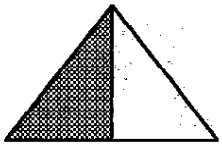


34. Circle 1/4 in the following figures:

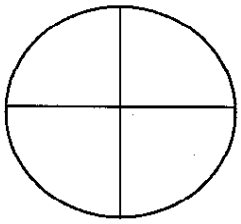


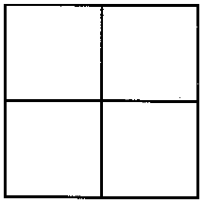


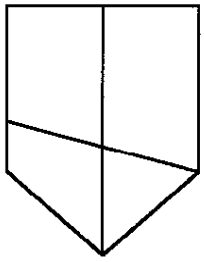


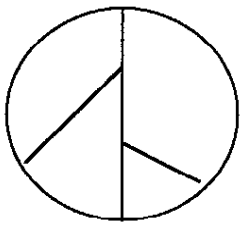


Color 1/4 of the following figures:









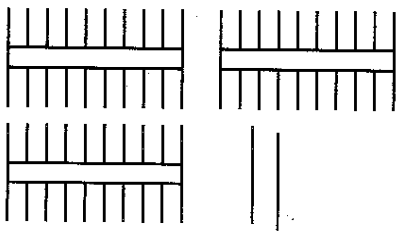
Mathematics Scope and Sequence Chart

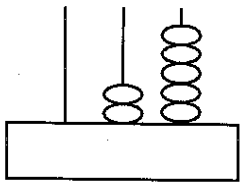
Math Concepts	I	II	III	IV	V	VI
Place Value	Pre number Concepts Tens; 1 – 99	Hundreds 100-999	Thousands 1000-100,000	Millions 7 Digit Numbers Add. and Sub.	Billions 8 - 10 digit numbers Add. and Sub.	Trillion 10 - 13 digit numbers Add and Sub.
Addition and Subtraction	Addition & Subtraction of 1 - 99 and zero without carrying and borrowing	Addition & Subtraction till 999 and zero with carrying/borrowing up to tens	Whole numbers w/wo borrow & carry Repeated addition	Review of multiplication Table		
Multiplication and Division			Multiplication and division by 1 to 9 and zero	Multiplication & division by 10s, 100s, 1000s without decimals Multiply/Divide numbers by 2, 3 and 4 digit numbers	Review multiplication and division	Review multiplication and division by 10s, 100s, 1000s with decimals
Fractions	Color 1/2 and 1/4 of figures	Matching fraction 1/2, 1/3, 2/3, 1/4, 2/4, 3/4 with figures	Identification of fraction (1/2, 1/3, 2/3, 1/4, 2/4, 3/4, 1/5, 2/5, 3/5, 4/5) with figures	Proper fractions Same denominator Compare Add Subtraction	Fractions Four operations: add, subtract, multiply and divide	Conversion of fractions to decimals and vice versa Compare
Decimals					Multiply/divide by 10s, 100s, 1000s with decimals Compare, add and subtract	Decimals Four operations: add, subtract, multiply and divide Ratio Percent
Measurement	Comparison of short and long, big and small and thick and thin	span, foot, steps compare capacity of containers Time; months, days and hours	m, cm, kg Hours and minutes	Multiples and parts of km, hm, dm, m m, dc, cm, mm Conversion without decimals	Multiples and parts km, hm, dm, m m, dc, cm, mm Conversion with decimals	Review perimeter in m, dc, cm, mm Review area of circle, triangle, rectangle and square in m^2 ,dc^2 cm^2 mm^2
Money/Calendar	Coins and bills up to 100 Afs.	50 Afs. 100Afs And 500 Afs.	Review of 50, 100, 500 1000, 5000, 10,000 Afs. Solar Calendar	Lunar Calendar	AD Calendar	
Geometry	Identify like and unlike shapes of circle, square, triangle, rectangle	Identify name and count shapes of circle, square, triangle, rectangle	Sides of triangle, square and rectangle Introd. to perimeter	Perimeters of triangles, circles, squares, rectangles Areas of squares, rectangles and Triangles	Areas of triangles, circles, squares, rectangles m^2 & cm^2	Volume of cubes, rectangular cubes and cylinders in m^3, cm^3

Class Two Math

Place Value up to Hundreds

1. Write the number:





➢ 2 tens and 3 ones ☐

Tens Ones

56 ⟶ ☐ ☐

2. Complete

☐ 1 , ☐ , ☐ , ☐ , ☐ 5 , ☐ , ☐ , ☐ 8 , ☐ 9

☐ 10 , ☐ 20 , ☐ , ☐ 40 , ☐ , ☐ , ☐ , ☐ 80 , ☐

3. ☐ 90 , ☐ , ☐ 70 , ☐ , ☐ 50 , ☐ , ☐ 30 , ☐ , ☐ 10

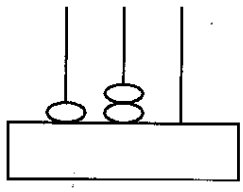
Name the circled numerals in the following numbers:

④6 5⑥ ②3 ①2 9⑦

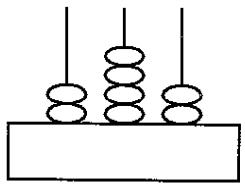
4. Compare and write. Write <, >, =

56 65	92 29	23 23

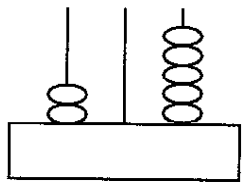
5. Write the numbers:



H	T	O



H	T	O



H	T	O

6 hundreds 8 tens 4 ones _____

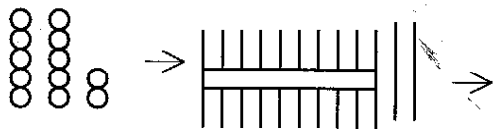
6. Write the missing number: ☐, 255, 256, ☐, 258

7. Write the number that comes between: 277, ☐, 279

Addition with Carrying

Add

$$\begin{array}{r} 27 \\ +\,15 \\ \hline 42 \end{array}$$

12 Ones →  →

T	O
1 2 1	7 5
4	2

Subtraction with Borrowing

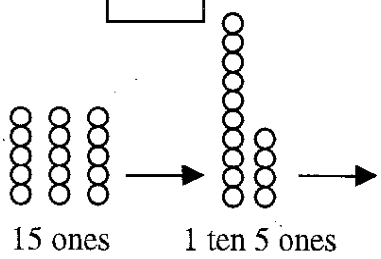
Subtract

$$\begin{array}{r} 32 \\ -\,14 \\ \hline 18 \end{array}$$

T	0
2	12
~~3~~	~~2~~
1	4
1	8

8. Add

$$\begin{array}{r} 468 \\ +127 \\ \hline \square \end{array}$$

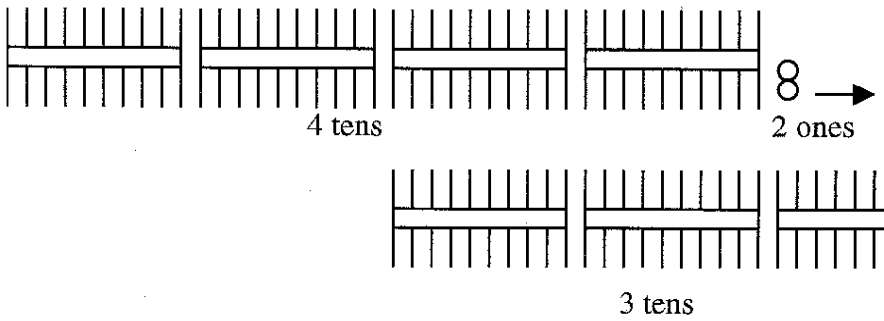


15 ones 1 ten 5 ones

H	T	O
	1	
4	6	8
1	2	7
5	9	5

9. Subtract

$$\begin{array}{r} 342 \\ +223 \\ \hline \square \end{array}$$



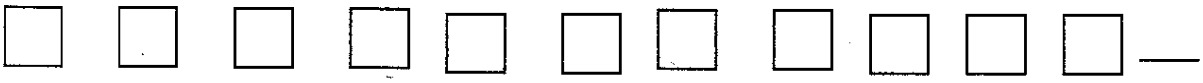
4 tens 2 ones

3 tens 12 ones

H	T	O
	3	12
3	~~4~~	~~2~~
2	2	3
1	1	9

10. Solve the problem:

- How many squares are there?



- How many triangles are there?

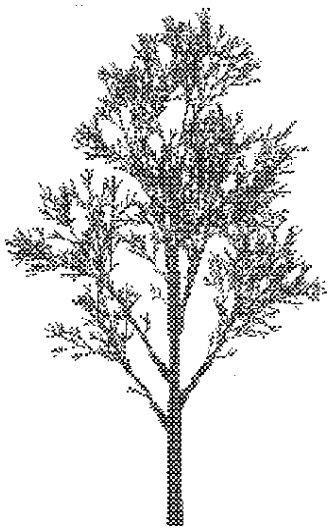
- What is the difference between the squares and the triangles?

_____

11. How many apples are still in the tree?

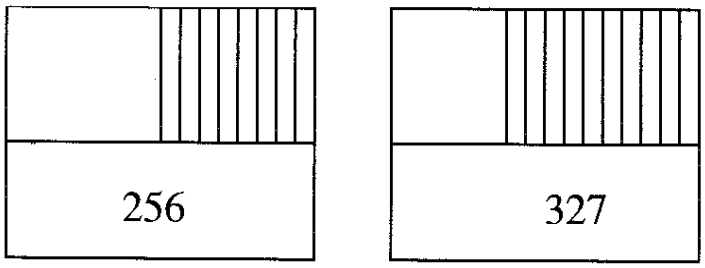
There were 242 apples on the

17 apples fell off the tree.



_____

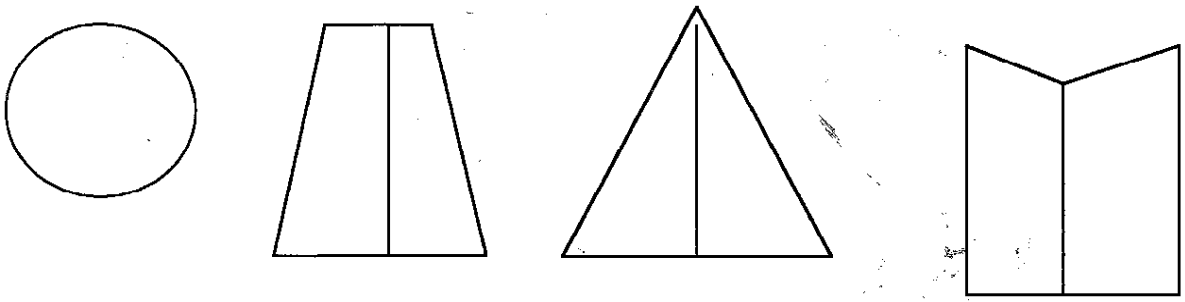
12. How many books are there in both shelves?



_____

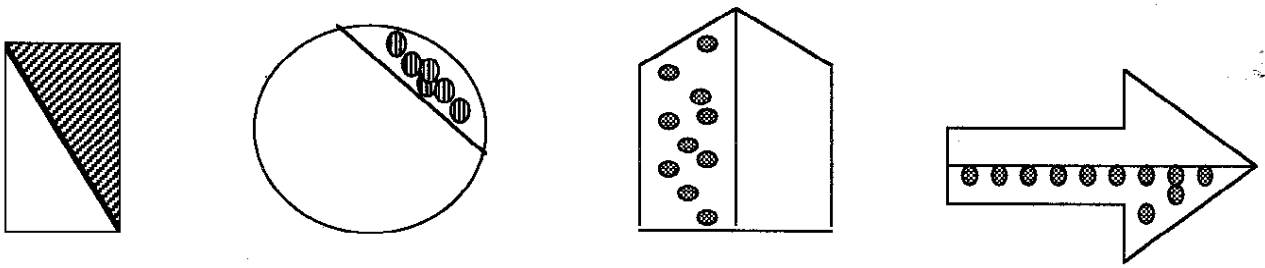
Fractions

13. How many equal parts are there in the figures.

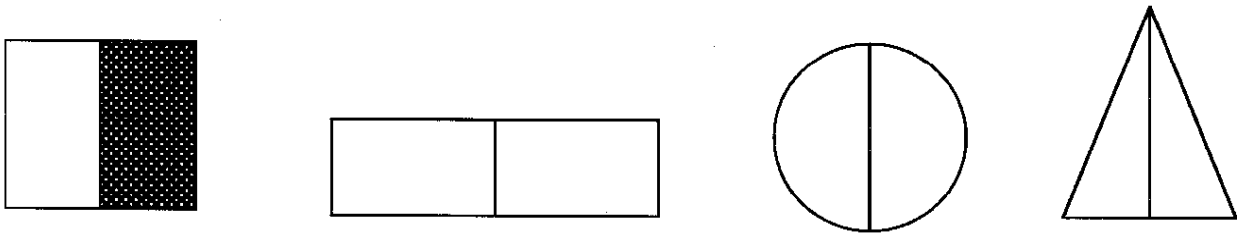


_____ Parts

14. Circle the shape that show 1/2.

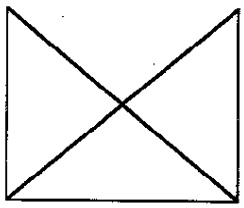


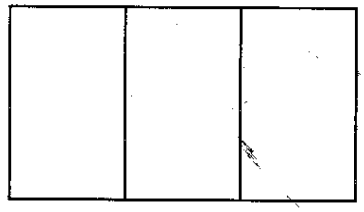
15. Color as shown in the figure below:

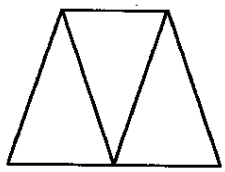


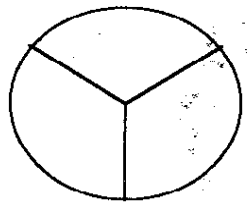
1/2 2/2 1/2 2/2

16. How many equal parts are in the figures below?



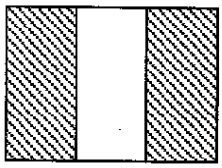


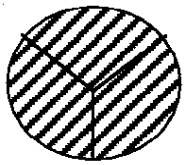


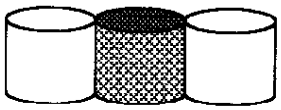


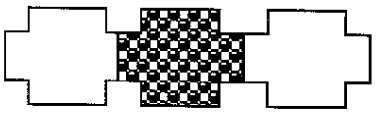
_____ Parts

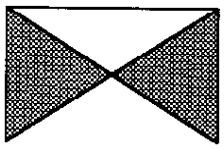
17. Match fractions with figures.









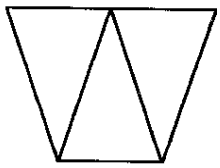


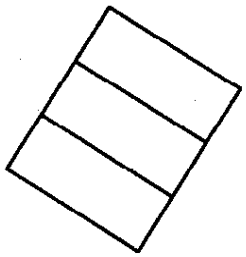
$\frac{1}{3}$

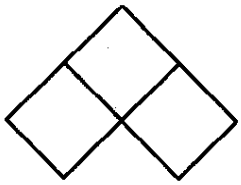
$\frac{2}{3}$

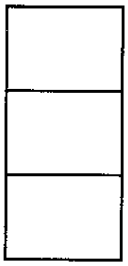
$\frac{3}{3}$

18. Color as indicated:



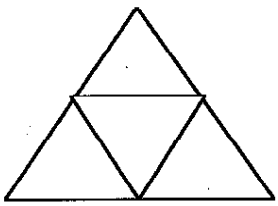
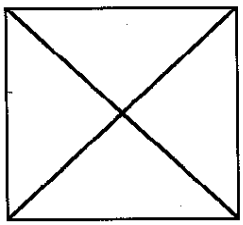
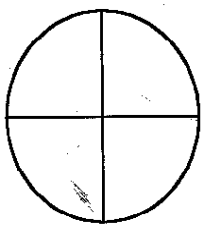
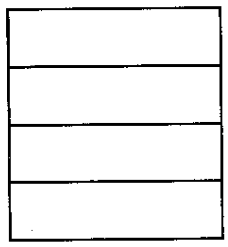






$\frac{1}{3}$ $\frac{2}{3}$ $\frac{3}{3}$ $\frac{1}{3}$

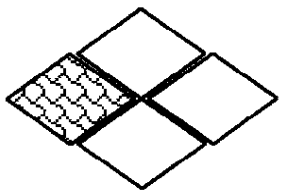
How many equal parts are there in the figures below;

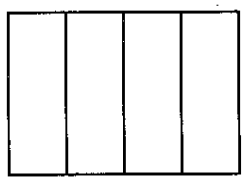
_____ parts

19. Color as indicated.

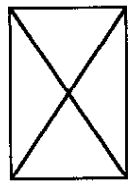
20.



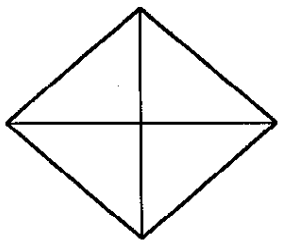
$\frac{1}{4}$



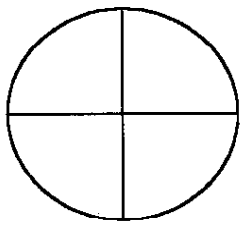
$\frac{3}{4}$



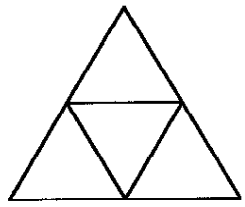
$\frac{2}{4}$



$\frac{4}{4}$

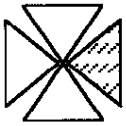


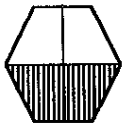
$\frac{1}{4}$

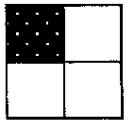


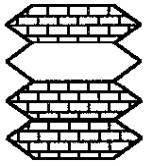
$\frac{4}{4}$

Match fractions with figures.









$\frac{1}{4}$

$\frac{3}{4}$

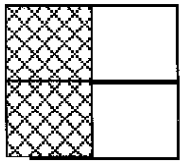
$\frac{2}{4}$

$\frac{4}{4}$

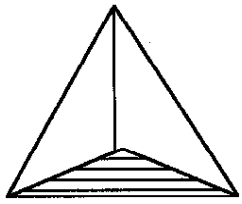
$\frac{1}{4}$

$\frac{2}{4}$

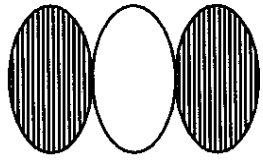
21. Circle the fraction of the shaded part,



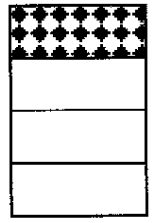
$\frac{2}{4}$, $\frac{1}{4}$, $\frac{3}{3}$



$\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{3}$



$\frac{2}{3}$, $\frac{3}{4}$, $\frac{2}{4}$

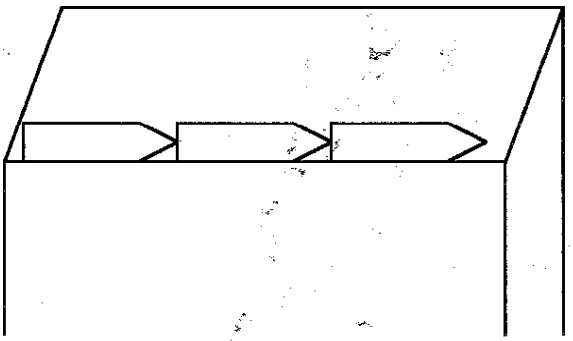


$\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$

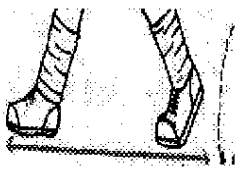
Measurements

Length

Pencil can be used to measure lengths

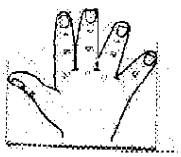


Parts of a body: a hand span, foot, a cubit hand, and a stride can be used to measure lengths.



a Stride

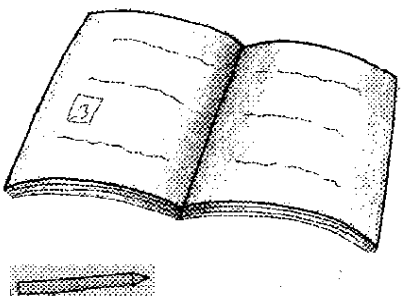
a cubit



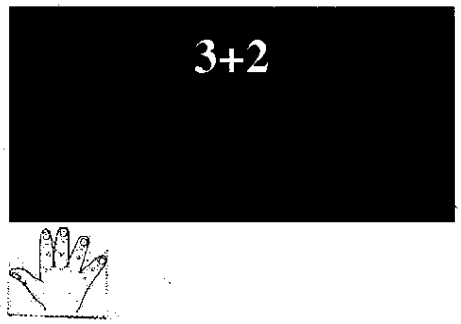
hand span

foot

22. Find the length of your notebook using pencil.



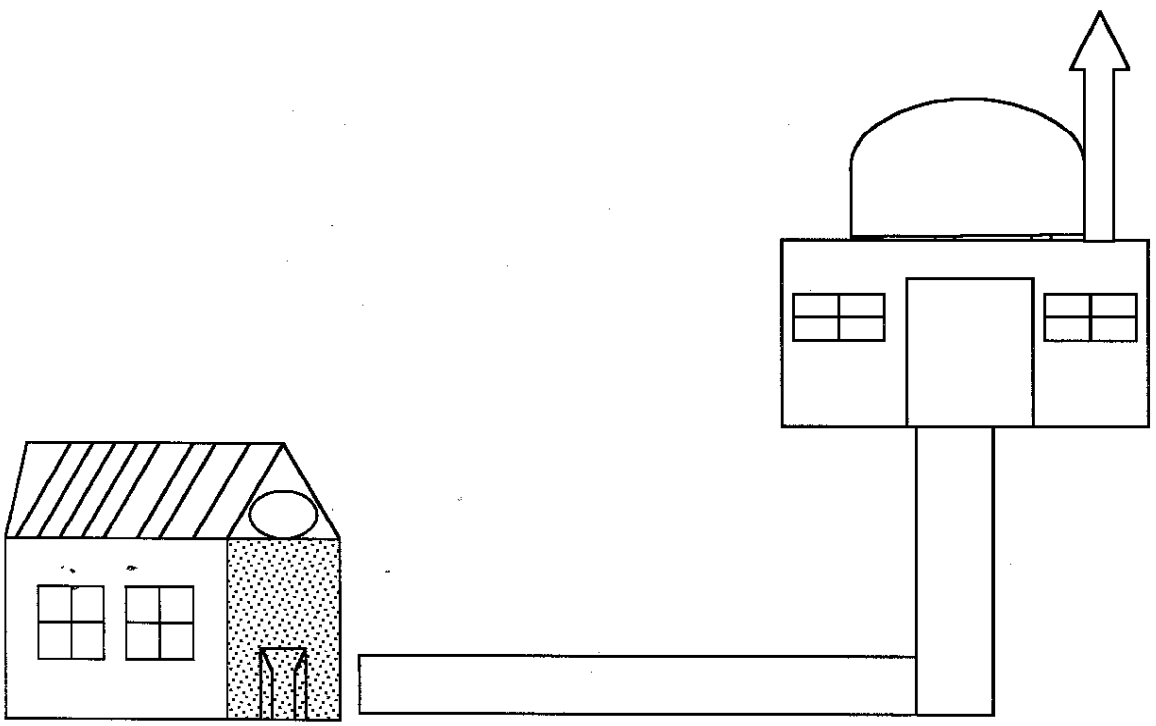
23. How many hand spans is the length of the black board?



Hand span

24. How many feet is the shadow of your classmate?_____
25. How many cubits is the length of your carpet?_____
26. How many strides is the length of your classroom?_____

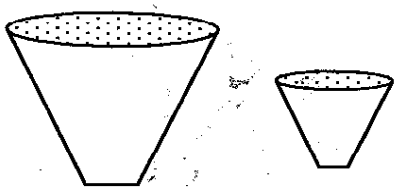
27. Using strides find the distance between your home to the mosque.



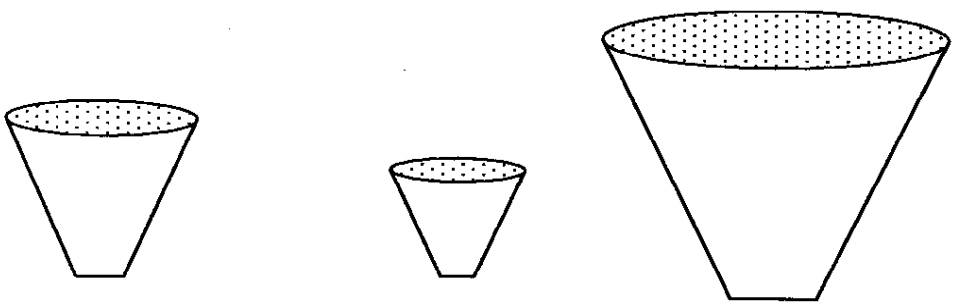
Capacity

28. Which one holds more?

29. Which one holds less?



A litre is used to measure the capacity



1 litre | Less than litre | More than litre

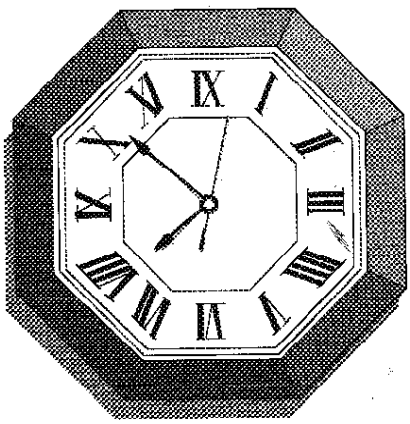
30. Circle the container which holds more than 1 litre.

31. Circle the container which holds less than 1 litre.

32. You have 25 Afs in your pocket, if you pay 7 Afs for a litre of milk. How many Afs will you still have?

_____Afs.

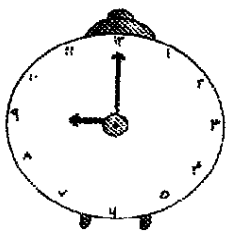
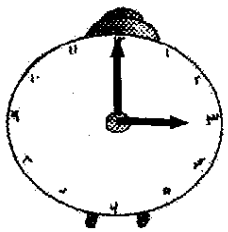
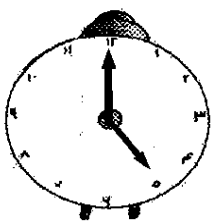
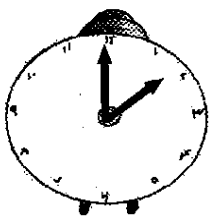
Time



The short hand indicates the hours.

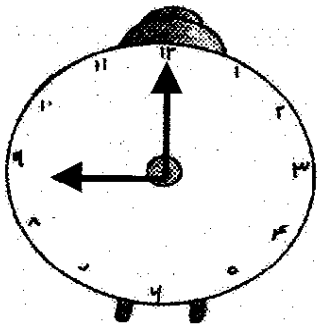
The long hand indicates the minutes.

33. What time is it?

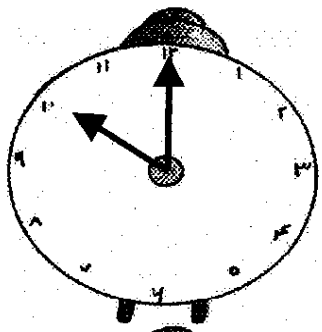





_____ _____ _____ _____

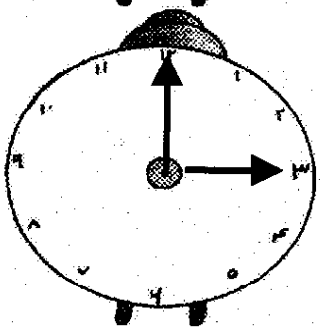
Match the time



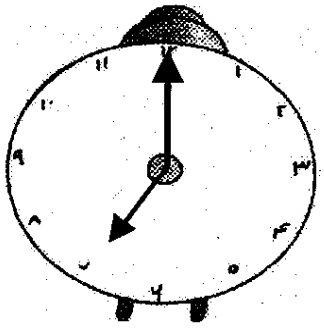
3:00



7:00



10:00



9:00

34. Circle the time you go to school. 8:00 10:00 4:00
35. Circle the time you eat your lunch. 9:00 12:00 2:00
36. Circle the time you go to bed. 10:00pm 8:00pm 11:00pm

Days of the Week

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

37. How many days are there in a week? _____days

38. Circle the day that comes after Monday — Wednesday Tuesday

39. Circle the day that comes after Wednesday — Thursday Friday

40. Circle the day that comes after Sunday — Saturday Monday

41. Circle the day that comes before Monday — Tuesday Sunday

42. Circle the day that comes before Thursday — Wednesday Tuesday

43. Circle the day that comes before Saturday — Friday Sunday

44. Circle the holiday of the week. — Friday Monday

45. Two days after Friday is — Wednesday Sunday

Months of the Solar year

Spring (Bahar)	**Aries (Hamal)**	**Taurus (Sower)**	**Gimini (Jawza)**
Summer (Tabistan)	**Cancer (Saratan)**	**Leo (Assad)**	**Virgo (Sunbula)**
Fall (Khazan)	**Libra (Mezan)**	**Scorpio (Aqrab)**	**Sagtarius (Qaws)**
Winter (Zemistan)	**Capricorn (Jadi)**	**Acquarius (Dalow)**	**Pisces (Hoot)**

46. How many months are there in a year? _____ months.

47. Match the seasons.

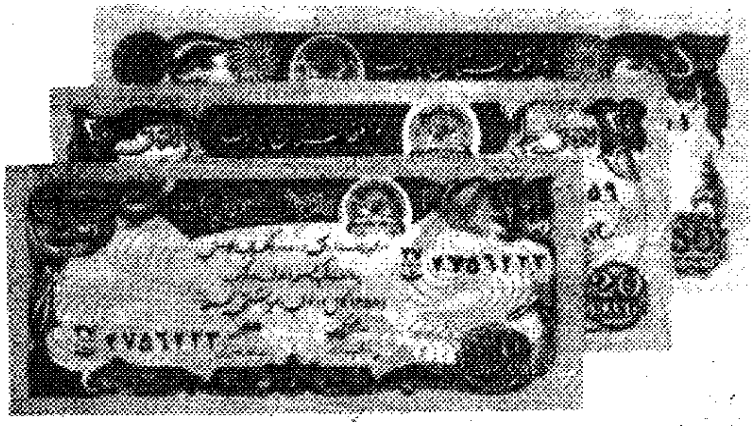
Spring	Hamal, Sowr, Jawza
Summer	Jaddi, Dalow, Hoot
Fall	Mizan, Aqrab, Qows
Winter	Saratan, Asad, Sunbula

48. Usually School starts in	Hamal	Saratan	Qaws
49. Circle the hot season	Fall	Summer	Winter
50. Circle the season in when snow falls	Summer	Winter	Fall
51. Circle the season when more fruits are available	Winter	Summer	Spring
52. Circle the first month of the solar year	Hamal	Saratan	Mezan

Money

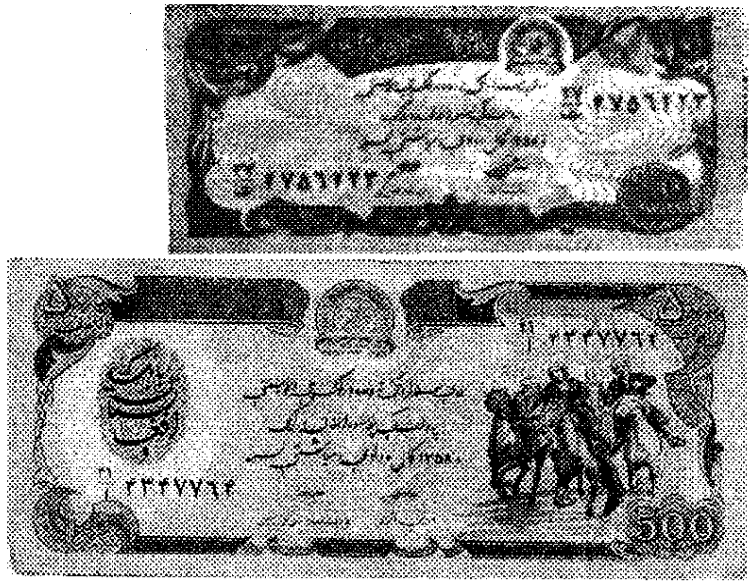
53. Write the amount

Add 50 Afs +20 Afs + 10 Afs



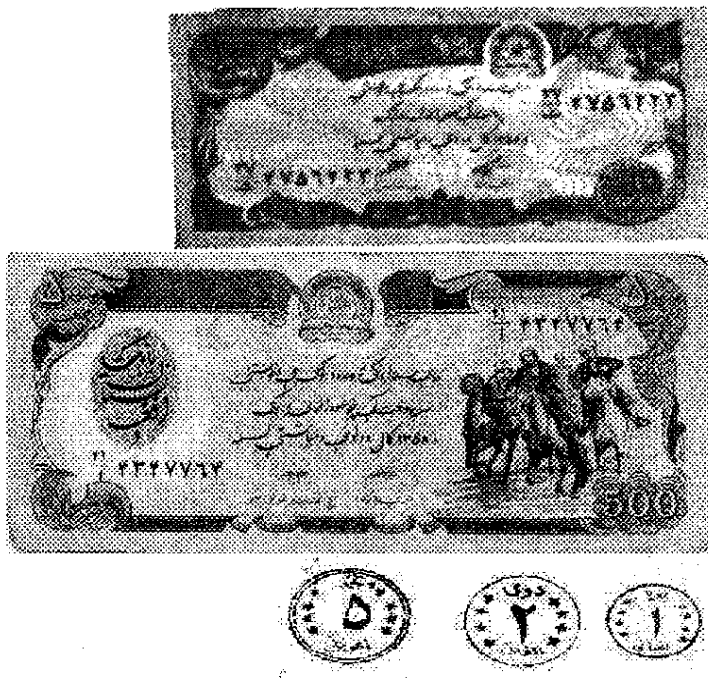
_____Afs.

Add 500 Afs + 10 Afs



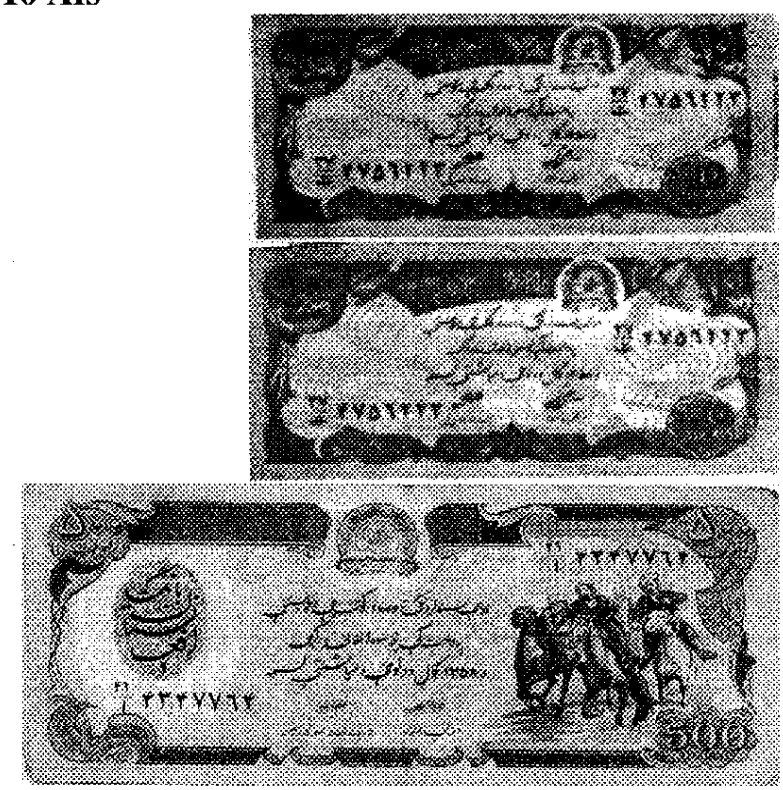
_____Afs.

Add 500 Afs + 10 Afs + 5 Afs + 2 Afs + 1 Af



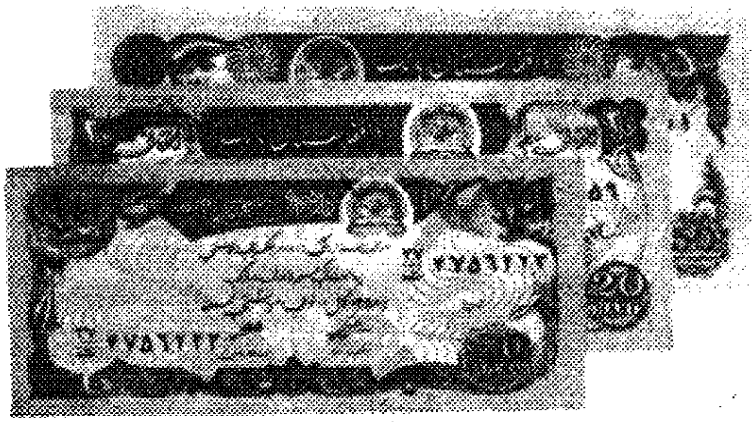
_____Afs.

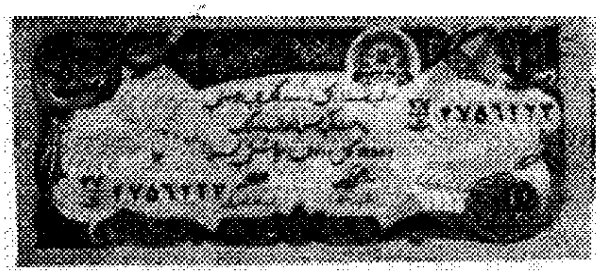
Add 500 Afs + 10 Afs + 10 Afs



_____Afs.

Add 50 Afs + 20 Afs + 10 Afs + 10 Afs

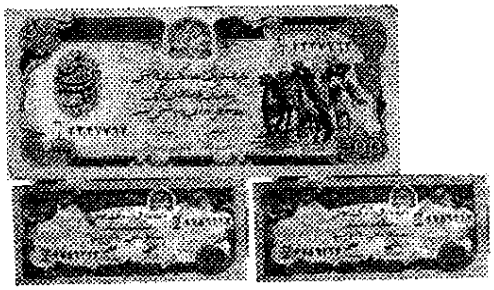




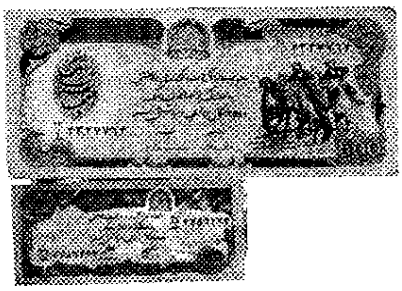
_____Afs.

54. Add and compare using <,>,=

500 Afs + 10 Afs + 10 Afs



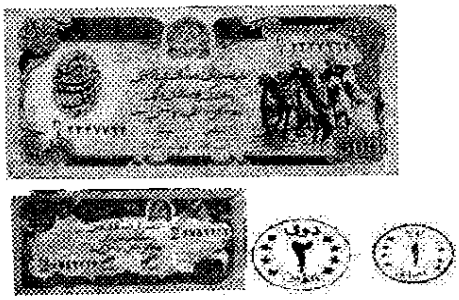
500 Afs + 10 Afs + 10 Afs



500 Afs + 10 Afs

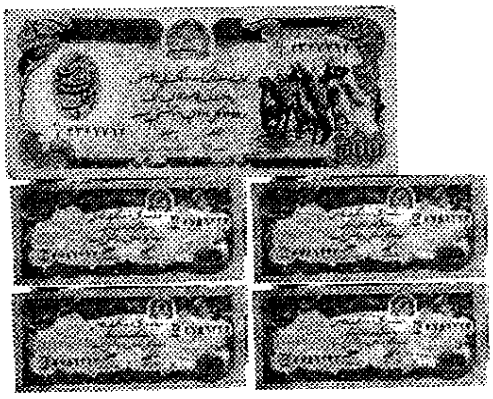
500 Afs + 10 Afs + 10 Afs

500 Afs + 10 Afs + 5 Afs



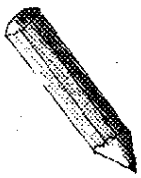
500 Afs + 10 Afs + 2 Afs + 1 Af

500 Afs + 10 Afs + 10 Afs + 10 Afs

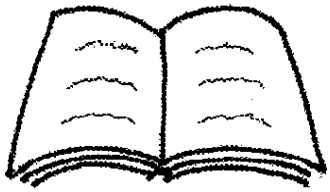


500 Afs + 10 Afs + 10 Afs + 10 Afs + 10 Afs

55. How many Afs must one pay?



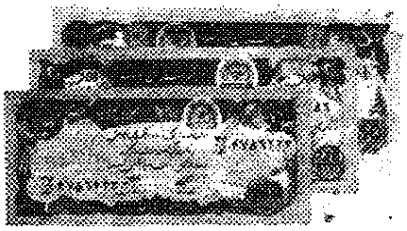
15 Afs



136 Afs

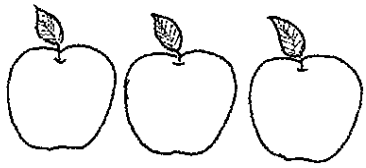
_____ Afs

56. How many Afs remains?



Hameed has
50 Afs + 20 Afs + 10 Afs
_____Afs

Hameed bought grapes for
15 Afs



Hameed bought apples for
76 Afs

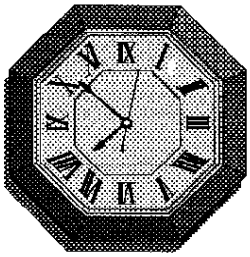
How many Afs did Hameed pay? _____

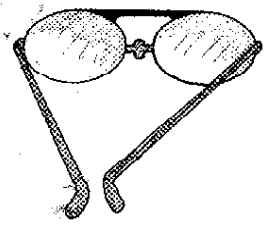
How many Afs remains? _____

Latifa has

500 Afs + 10 Afs + 10 Afs

_____Afs





Latifa bought a clock for 150 Afs

Latifa bought a lock for 65 Afs

Latifa bought eyeglasses for 250 Afs

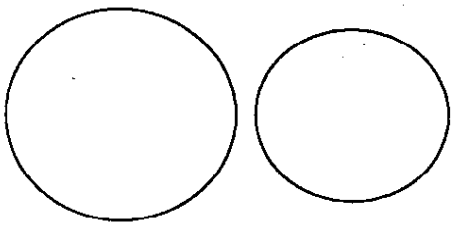
How much money did Latifa have? _____

How much did she spend? _____

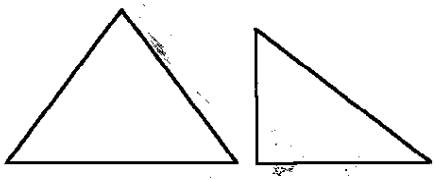
How much money does she still have? _____

Geometry

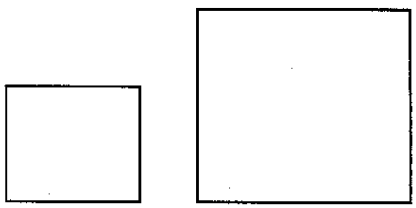
The students will be able to recognize that:



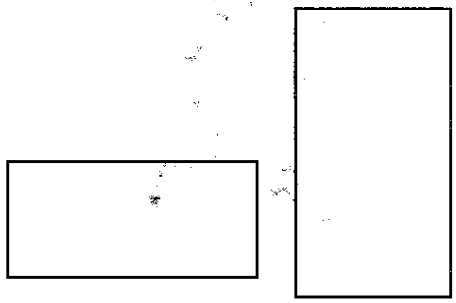
Circles have no sides



Triangles have three sides

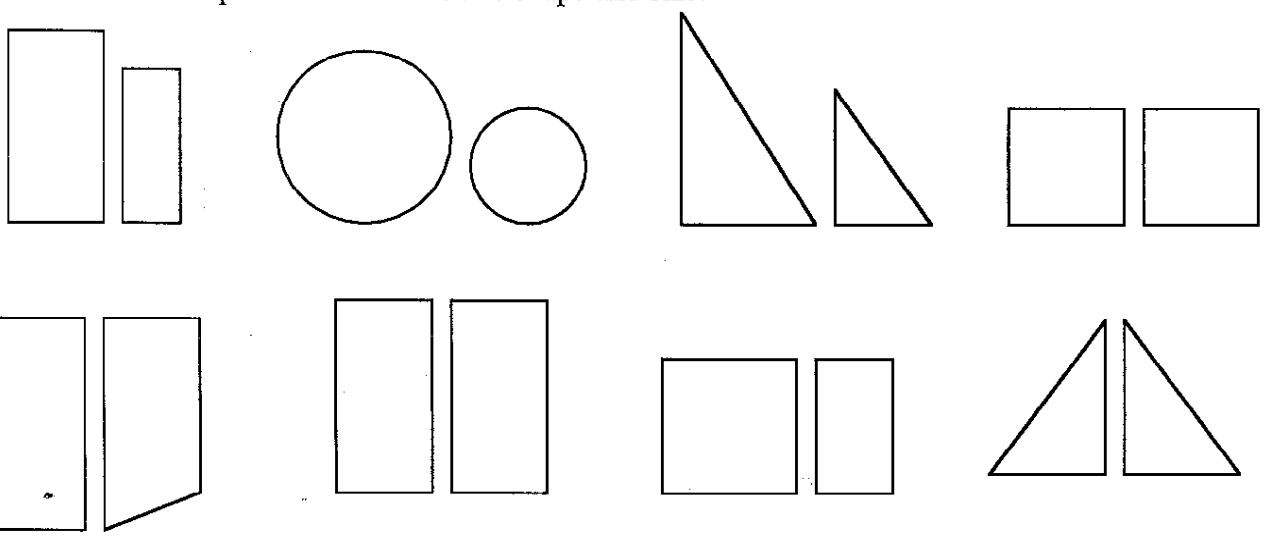


Squares have 4 sides
All the same length



Rectangles have 4 sides
Each two facing sides are the same length

57. Circle the pairs that are the same shape and size.



58. Answer these questions:

How many sides does a triangle have? _____

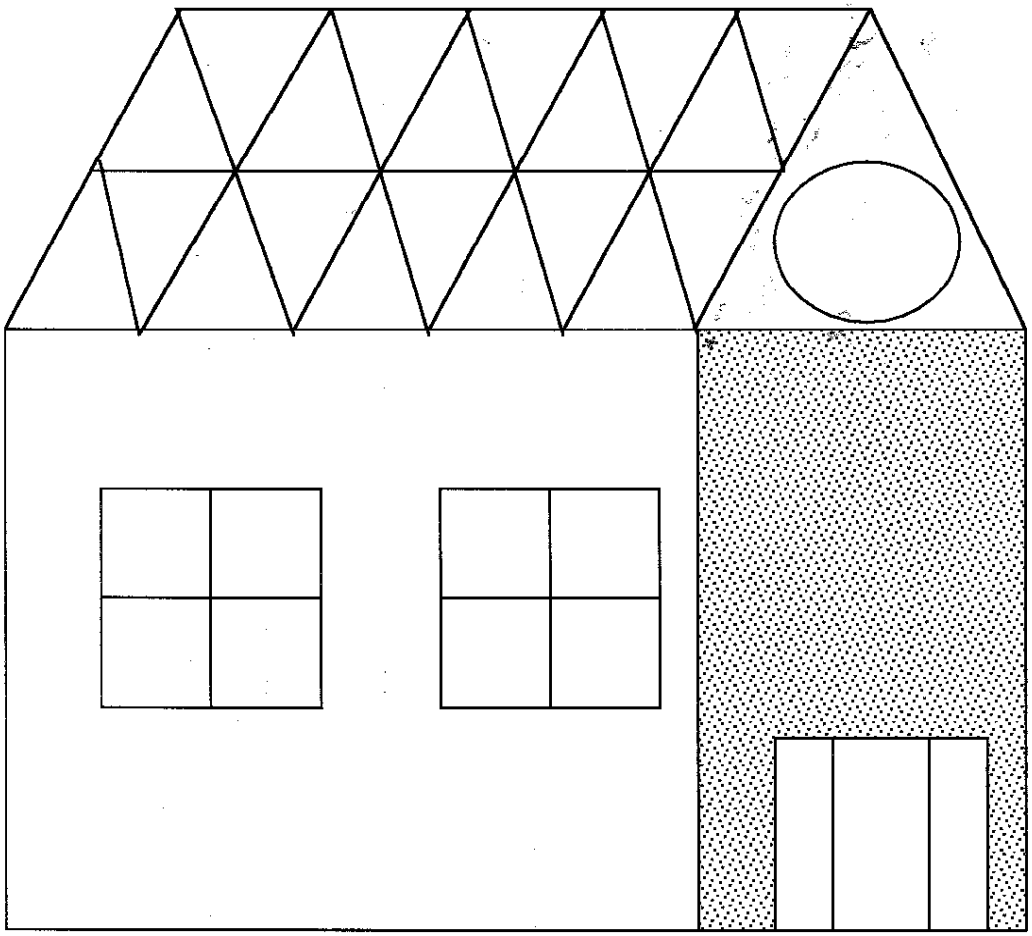
How many sides does a cirlce have? _____

How many sides does a rectangle have? _____

59. Answer YES or NO:

The sides of a rectangle are the same length. **Yes** **No**

The sides of a square are the same length. **Yes** **No**



60. Write the number of :

Circles ☐

Triangles ☐

Squares ☐

Rectangles ☐

Mathematics Scope and Sequence Chart

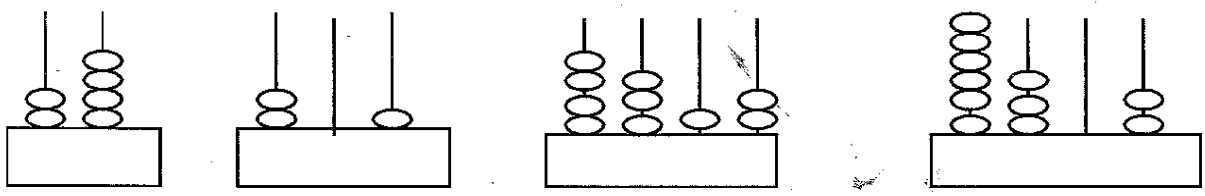
Math Concepts	I	II	III	IV	V	VI
Place Value	Pre number Concepts Tens; 1 – 99	Hundreds 100-999	Thousands 1000-100,000	Millions 7 Digit Numbers Add. and Sub.	Billions 8 - 10 digit numbers Add. and Sub	Trillion 10 - 13 digit numbers Add and Sub
Addition and Subtraction	Addition & Subtraction of 1 - 99 and zero without carrying and borrowing	Addition & Subtraction till 999 and zero with carrying/borrowing up to tens	Whole numbers w/wo borrow & carry Repeated addition	Review of multiplication Table		
Multiplication and Division			Multiplication and division by 1 to 9 and zero	Multiplication & division by 10s, 100s, 1000s without decimals Multiply/Divide numbers by 2, 3 and 4 digit numbers	Review multiplication and division	Review multiplication and division by 10s, 100s, 1000s with decimals
Fractions	Color 1/2 and 1/4 of figures	Matching fraction 1/2, 1/3, 2/3, 1/4, 2/4, 3/4 with figures	Identification of fraction (1/2, 1/3, 2/3, 1/4, 2/4, 3/4, 1/5, 2/5, 3/5, 4/5) with figures	Proper fractions Same denominator Compare Add Subtraction	Fractions Four operations: add, subtract, multiply and divide	Conversion of fractions to decimals and vice versa Compare
Decimals					Multiply/divide by 10s, 100s, 1000s with decimals Compare, add and subtract	Decimals Four operations: add, subtract, multiply and divide Ratio Percent
Measurement	Comparison of short and long, big and small and thick and thin	span, foot, steps compare capacity of containers Time; months, days and hours	m, cm, kg Hours and minutes	Multiples and parts of km, hm, dm, m m, dc, cm, mm Conversion without decimals	Multiples and parts km, hm, dm, m m, dc, cm, mm Conversion with decimals	Review perimeter in m, dc, cm, mm Review area of circle, triangle, rectangle and square in m^2 ,dc^2 cm^2 mm^2
Money/Calendar	Coins and bills up to 100 Afs	50 Afs, 100Afs And 500 Afs	Review of 50, 100, 500 1000, 5000, 10,000 Afs Solar Calendar	Lunar Calendar	AD Calendar	
Geometry	Identify like and unlike shapes of circle, square, triangle, rectangle	Identify name and count shapes of circle, square, triangle, rectangle	Sides of triangle, square and rectangle Introd. to perimeter	Perimeters of triangles, circles, squares, rectangles Areas of squares, rectangles and Triangles	Areas of triangles, circles, squares, rectangles m^2 & cm^2	Volume of cubes, rectangular cubes and cylinders in m^3, cm^3

Class Three Math

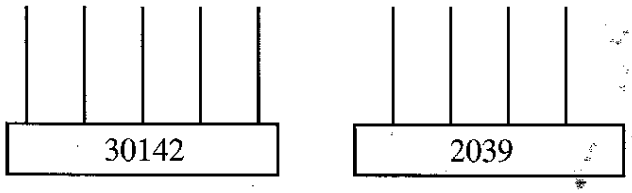
Place Value up to Thousands

The children will be able to:

1. Read and write the numbers indicated in the abacus



2. Draw the following numbers in the abacus:



3. Fill in the missing numbers in the blanks below and read them

506			509				513		

1624			1627		1629	

4. Write the digits of the numbers below in the tables

24

T	O

501

H	T	O

4312

Th.	H	T	O

5. Add and write in standard form
   400+20+5
   6000+300+10

6. Expand the following numbers
   e. g. 784 = 700 + 80 + 4
   749 _____
   2501 _____

Addition without Carrying

7. Add without carrying

123	4821	87621
+245	+3118	+12378
368		

Subtraction without Borrowing

8. Subtract without borrowing:

842	6749	97845
-521	-4436	-85432
321		

Addition with Carrying

9. Add and carry:

	1		
8	4	2	
+1	3	9	
9	8	1	

		1		
4	5	7	2	
+3	3	8	1	
7	9	5	3	

	1	*1*		
8	2	3	2	
+1	1	9	9	
9	4	3	1	

1	*1*	*1*	*1*	
8	8	7	6	5
+	4	4	5	6
9	3	2	2	1

Subtraction with Borrowing

10. Subtract and borrow:

	3		
2	4	12	
-1	2	8	
1	1	4	

	3		
8	4	12	5
+6	2	4	3
2	1	8	2

	7		
2	8	10	
-1	2	5	
1	5	5	

	7		
5	8	10	5
+4	2	3	2
1	5	7	3

	4			
2	5	10	10	
-1	4	0	5	
1	0	9	5	

	6	9	9	
2	7	10	10	11
+1	6	5	4	9
1	0	4	5	2

H	T	U
	3	
2	4	12
-1	2	8
1	1	4

Th	H	T	U
	3		
8	4	12	5
-6	2	4	3
2	1	8	2

10 Th	Th	H	T	U
	7		6	12
8	15	7	3	12
-3	6	5	3	3
4	9	1	9	9

Subtraction with Zeroes

11. Subtract with zeroes

H	T	U
	7	
2	8	10
1	2	5
1	5	5

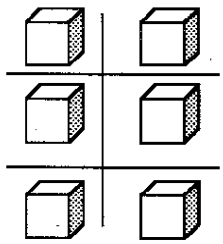
Th	H	T	U
	7		
5	8	10	5
-4	2	3	2
1	5	7	3

Th	H	T	U
	4	9	
2	5	10	10
1	4	0	5
1	0	9	5

10 Th	Th	H	T	U
	6	9	9	
2	7	10	10	11
-1	6	5	4	9
1	0	4	5	2

Multiplication

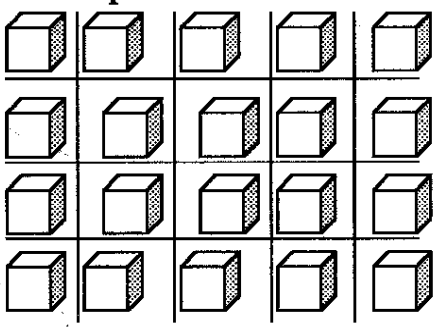
Recognizcd that multiplication is repetitive addition like the example:



2 + 2 + 2 = 6

2 × 3 = 6

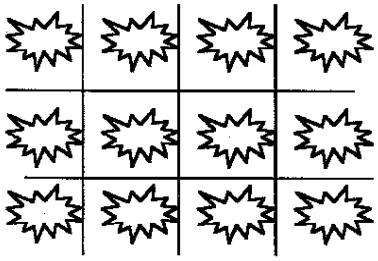
3 × 2 = 6



4 + 4 + 4 + 4 + 4 = 20

5 × 4 = 20

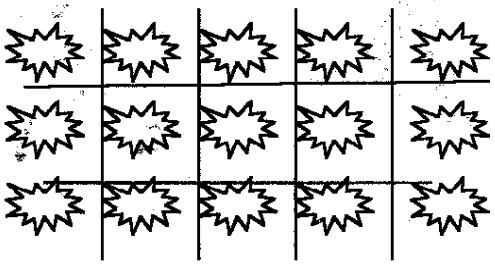
4 × 5 = 20



3 + 3 + 3 + 3 = 12

4 × 3 = 12

3 × 4 = 12



5 + 5 + 5 = 15

3 × 5 = 15

5 × 3 = 15

12. Fill in the blanks:

1 × 6 = 6	1 × 7 = ____	1 × 8 = 8	1 × 9 = 9
2 × 6 = 12	2 × 7 = 14	2 × 8 = ___	2 × 9 = ___
3 × 6 = ___	3 × 7 = ___	3 × 8 = ___	3 × 9 = 27
4 × 6 = ___	4 × 7 = ___	4 × 8 = 32	4 × 9 = ___
5 × 6 = ___	5 × 7 = ___	5 × 8 = ___	5 × 9 = ___
6 × 6 = ___	6 × 7 = 42	6 × 8 = ___	6 × 9 = 54
7 × 6 = ___	7 × 7 = ___	7 × 8 = ___	7 × 9 = ___
8 × 6 = ___	8 × 7 = ___	8 × 8 = ___	8 × 9 = 72
9 × 6 = ___	9 × 7 = ___	9 × 8 = 72	9 × 9 = ___
10 × 6 = ___	10 × 7 = 70	10 × 8 = ___	10 × 9 = ___

13. Fill in the blanks in the multiplication table below:

×	1	2	3	4	5	6	7	8	9	10
1									9	
2				8						
3										
4		8				24				50
5										
6			18							
7							49			
8				32				64		
9					45					
10									90	

14. Multiply by one-digit numbers without carrying:

12	132	2121
× 2	× 3	× 4
	396	

15. Multiply by one-digit numbers with carrying:

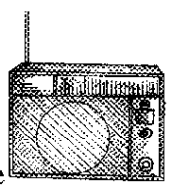
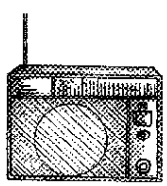
2246	21182	11586
× 2	× 3	× 4

16. Multiply with zero:

×	0	1	2	3	4	5	6	7	8	9	10
0	0			0							0

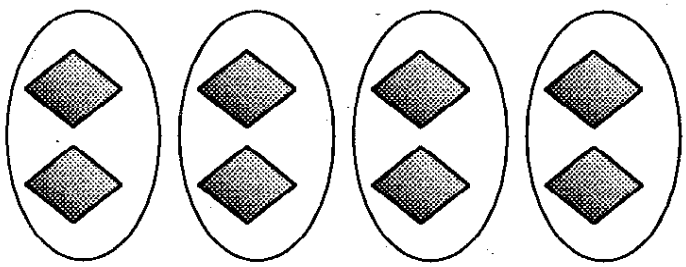
17. Multiply one-digit number with numbers having zero:

8210	68020
× 5	× 6

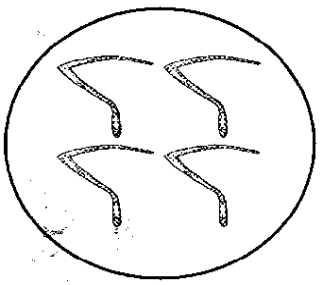
18. One  costs 3812 Afghanis. How much will 3  cost?

Division

Recognize that division is repetitive subtraction

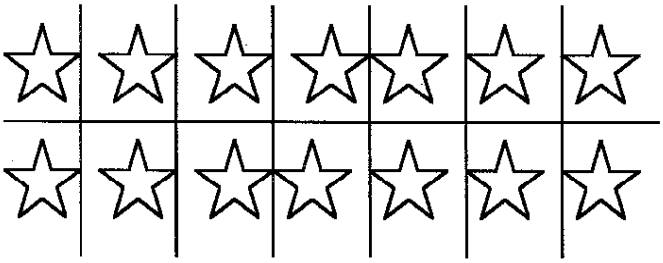


$8 - 2 = 6$ $6 - 2 = 4$ $4 - 2 = 2$ $2 - 2 = 0$



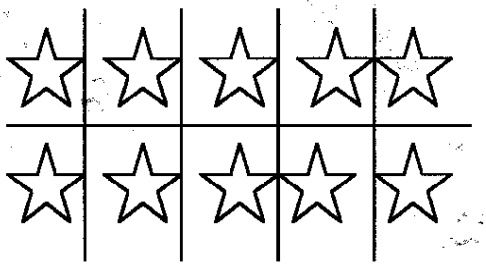
$4 \div 4 = 1$

There are four 2's in 8. $8 \div 2 = 4$



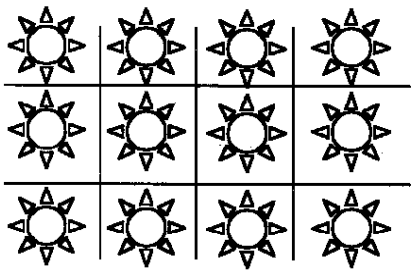
$14 \div 2 = 7$

$14 \div 7 = 2$



$10 \div 5 = 2$

$10 \div 2 = 5$

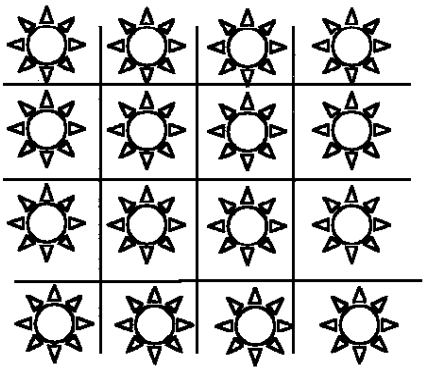


$12 \div 3 = 4$

$12 \div 4 = 3$

$3 \times 4 = 12$

$4 \times 3 = 12$



$20 \div 5 = 4$

$20 \div 4 = 4$

$4 \times 5 = 20$

$5 \times 4 = 20$

19. Fill in the blanks

50 ÷ 5 =	90 ÷ 9 =	28 ÷ 7 =
45 ÷ 5 =	72 ÷ 9 =	70 ÷ 10 =
40 ÷ 5 =	54 ÷ 9 =	35 ÷ 7 =
35 ÷ 5 =	36 ÷ 9 =	63 ÷ 7 =
30 ÷ 5 =	81 ÷ 9 =	42 ÷ 7 =
25 ÷ 5 =	63 ÷ 9 =	56 ÷ 7 =
	45 ÷ 9 =	49 ÷ 7 =

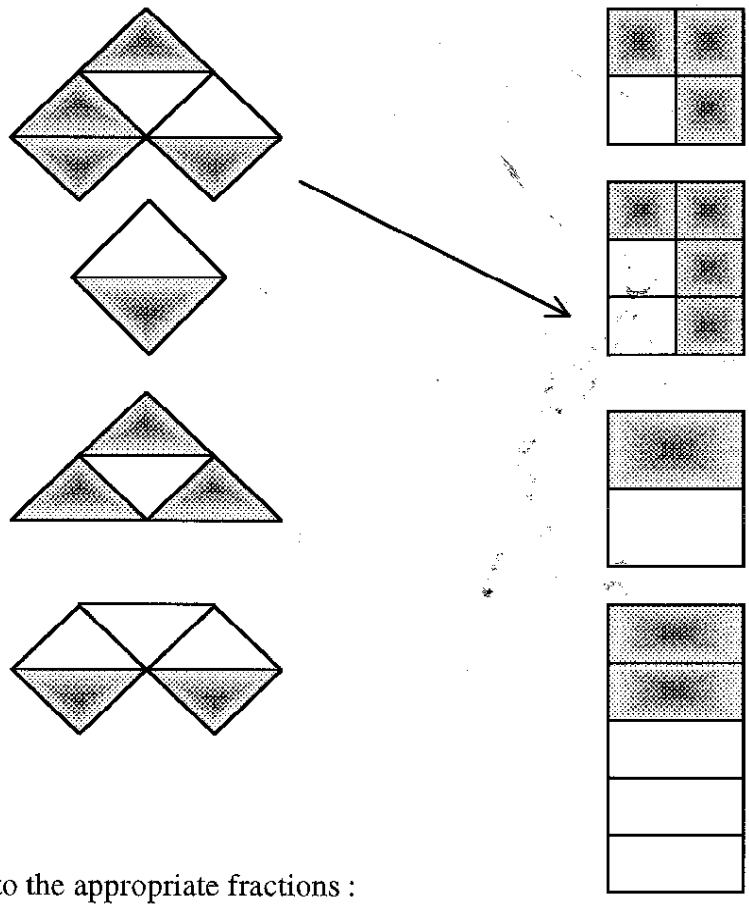
20. Divide:

	T	U
	2	7
3	8	1
	-6	
	2	1
	-2	1
	0	0

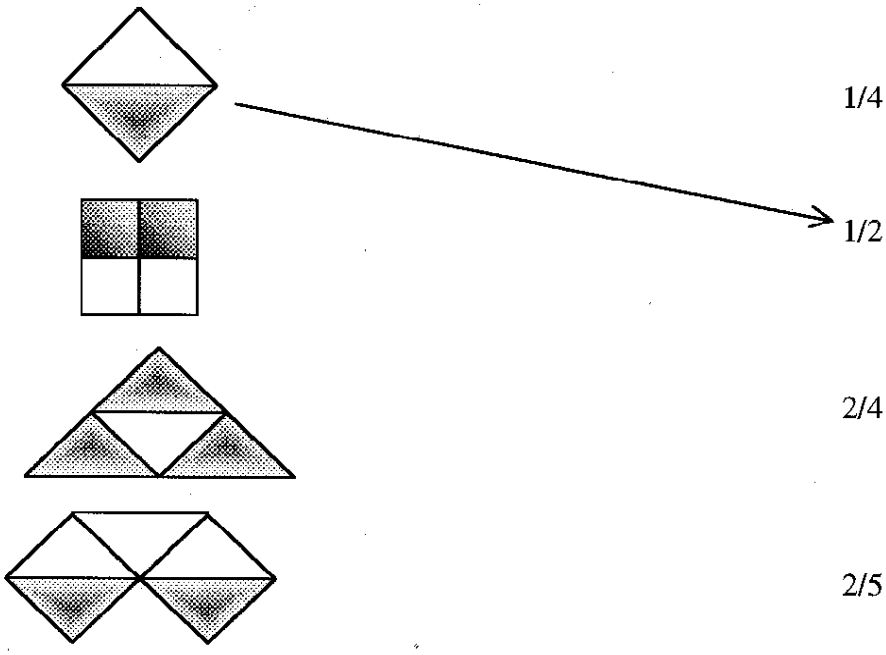
	T	U
	1	6
4	6	4
	-4	
	2	4
	-2	4
	0	0

Fractions

21. Match equal fractions



Match the figure to the appropriate fractions :



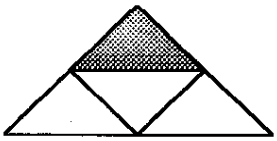
1/4

1/2

2/4

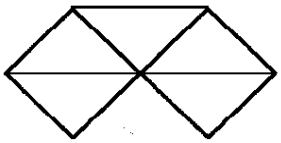
2/5

22. Color

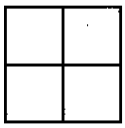


1/4

2/3

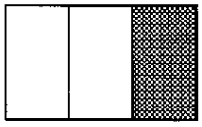


5/5

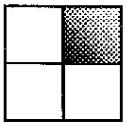


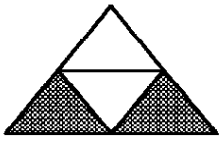
3/4

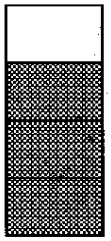
23. Write the fraction of the shaded part

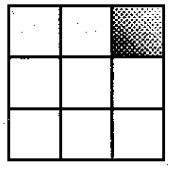


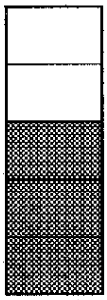
1/3



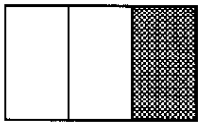






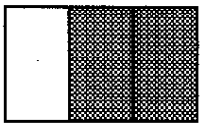


24. Complete the fractions



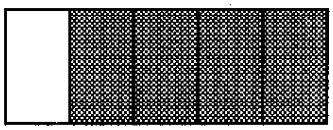
1 Parts shaded

3 Equal Parts



Parts shaded

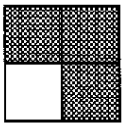
Equal Parts



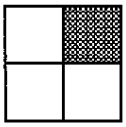
Parts shaded

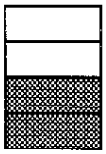
Equal Parts

25. Compare Fractions using <, >, =

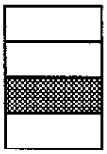


$\frac{3}{4}$ > $\frac{1}{4}$

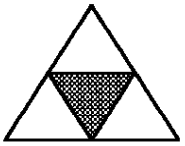


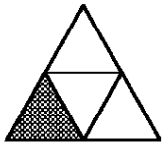


2

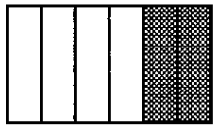


4

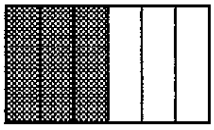




1/4



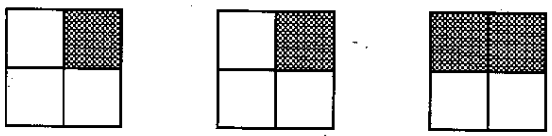
2/6



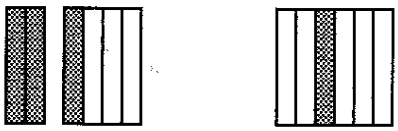
3

Addition and Subtraction of Fraction

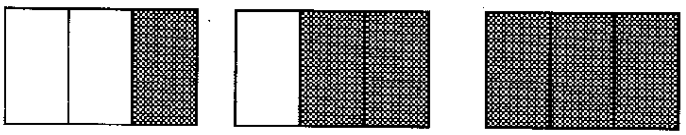
26. Solve the problems:



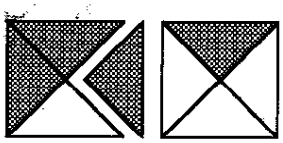
1/4 + 1/4 = 2/4



3/6 – 2/6 = _____



1/3 + 2/3 = _____



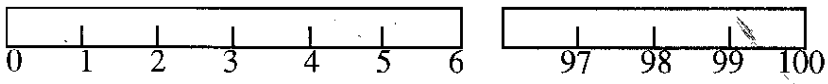
3/4 – 1/4 = _____

Measurement

Length

Lengths are measured by meter

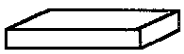
1 m = 100 cm



27. Use the ruler and measure the following objects

The length of the pencil is  _____ cm.

The length of the book is  _____ cm.

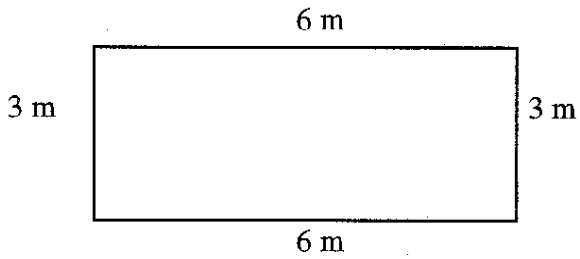
The length of the eraser is  _____ cm.

28. What is the difference between thr length of the pen and the eraser? _____ cm.

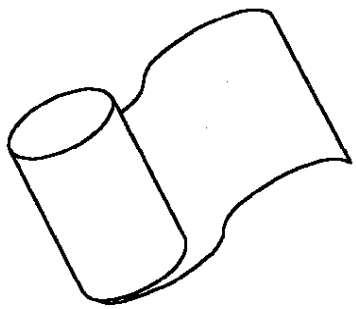
29. What is the totla length of the pencil, the book and the eraser? _____ cm.

30. Measure the four sides of your classroom and add all the sides to find the perimeter.

31. Find the perimeter of this rectangle

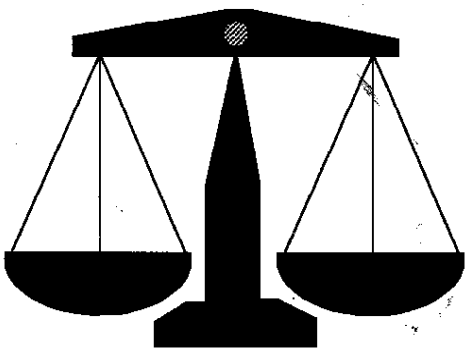


32. Marry bought a roll of clothes 16 meters long. She cut 12 meters to make a dress, how many meters are left?



Weight

Weight is measured by Kilograms.
Light things are measured by Grams. e. g. Gold, beads, cardamom, etc.



33. Sharifa's father bought 21kgs of potatoes, 14 kgs of onions and 3kg of sugar. How many kgs did he buy.

_____

34. One gram of beads cost 24 Afs.
What is the cost of 8 grams of beads?

_____

35. Shafiqa bought a golden ring which weighs 1g for 1800 Afs.
If she buys 3rings of the same weight, how much will she pay?

_____

Time

Solar Calendar

There are 12 months in a year.
Each month has about four weeks.
Each week has 7 days.
The days of the week are: **Saturday, Sunday, Monday, Tuesday, Wednesday, Thursday, and Friday**
The Solar year is 1378.
The following is the solar calendar

Spring (Bahar)		
Hamal	Sawar	Jawza
31 days	31 days	31 days

Summer(Tabistan)		
Saratan	Asad	Sanbula
31 days	31 days	31 days

Fall(Khazan)		
Mezan	Aqrab	Qaus
30 days	30 days	30 days

Winter (Zamistan)		
Jadi	Dalow	Hoot
30 days	30 days	29 days

36. Answer these questions:

How many seasons are there in a year? _____

How many months are there in a year? _____

How many months are there in a season? _____

Which months have 31 days? _____

Which month has 29 days? _____

The following is the month of Hamal in the year 1378.
Hjamal runs through March and April.

Sat	Sun	Mon	Tues	Wed	Thu	Fri
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Hamal 1st is farmer's day
Hamal 7th –9th are Eid holidays

37. Answer the following questions

Which day is the first of the month? _____

How many days are there in this month? _____

How many Fridays are there in this month. _____

Write the dates on which Friday s fall. _____

Which days are Eid holidays? _____

Write the dates of the Eid Holiday. _____

What day falls on the sixth of the month? _____

Write the following dates by day, month, and year:

6/1/1378 _____

14/1/1378 _____

18/1/1378 _____

26/1/1378 _____

2/1/1378 _____

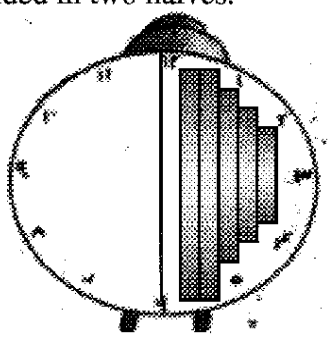
31/1/1378 _____

Time

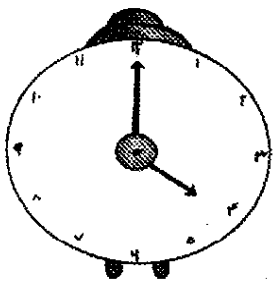
Time is measured by hours.
One day (daytime and night) is 24 hours.
One hour is 60 minutes.

There are two hands on a clock, the short hand tells the hour, and the long hand tells the minute.
The long hand takes 5 minutes to move from one number to the next.
Imagine the face of the clock is divided in two halves.

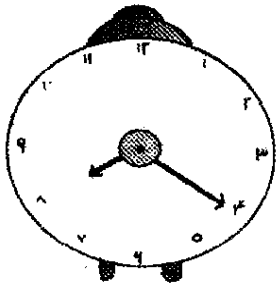
When the minute hand is on the left side we say, **to** the hour.



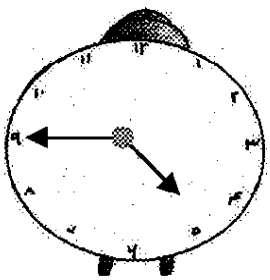
When the minute hand is on the right side, we say **past** the hour.



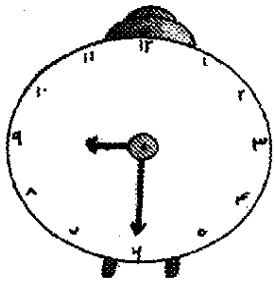
4o,clock



20 minutes past 8



15 minutes to 5

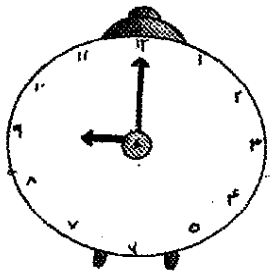


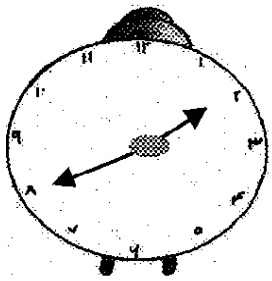
30 minutes past 9

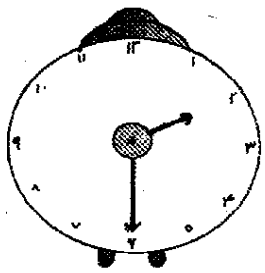
38. Count by fives: Complete the pattern

0	5	10		20	25			40		50		60

39. Write the time:

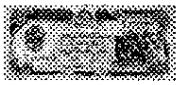
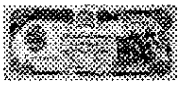
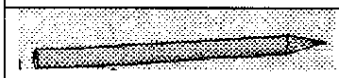
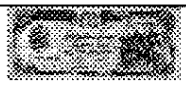
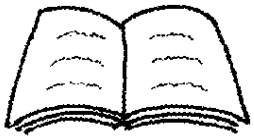
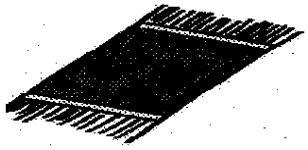
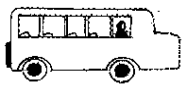






Money

Write the price of the following objects

	 500 Afs  500 Afs  1000 Afs	
	 1000 Afs 1000 Afs 1000 Afs	
	 500 Afs	500 Afs
	 1000 Afs 500 Afs	
	 1000 Afs 1000 Afs 1000 Afs  500 Afs 500 Afs	
	 1000 Afs 1000 Afs 1000 Afs  1000 Afs 1000 Afs 1000 Afs  500 Afs 500 Afs 500 Afs 500 Afs	

Compare the money units by using <, >, =

1000 Afs 500 Afs

1000 Afs 500 Afs

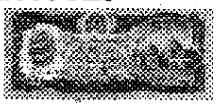
500 Afs 500 Afs

500 Afs 500 Afs

1000 Afs 1000 Afs

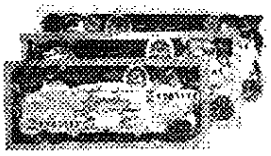
1000 Afs 1000 Afs

1000 Afs 1000 Afs

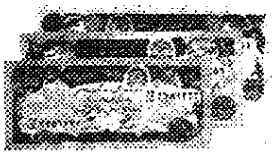


1000 Afs

1000 Afs



50 Afs, 20 Afs, 10 Afs



50 Afs, 20 Afs, 10 Afs

7000

40. Solve the following problems:

Fatah's father had 66000 Afs. He bought oil and flour for 35000. How many Afs does he have now?

Zarlasht had 5000 Afs. Her father gave her 500 Afs for the Eid. How many Afs does she have now?

A bus has 38 passengers. The fare for each passenger is 6 Afs, What is the total fare for all passengers?

Sharif had 81 Afs He divided it among his three sisters. How much did each sister get?

Shapes

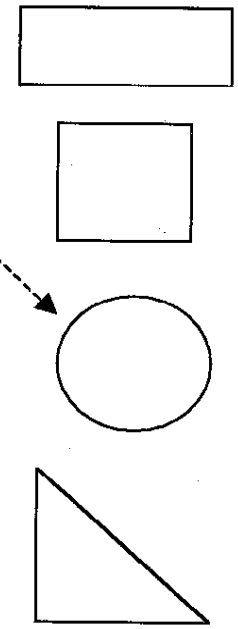
41. Match

Circle

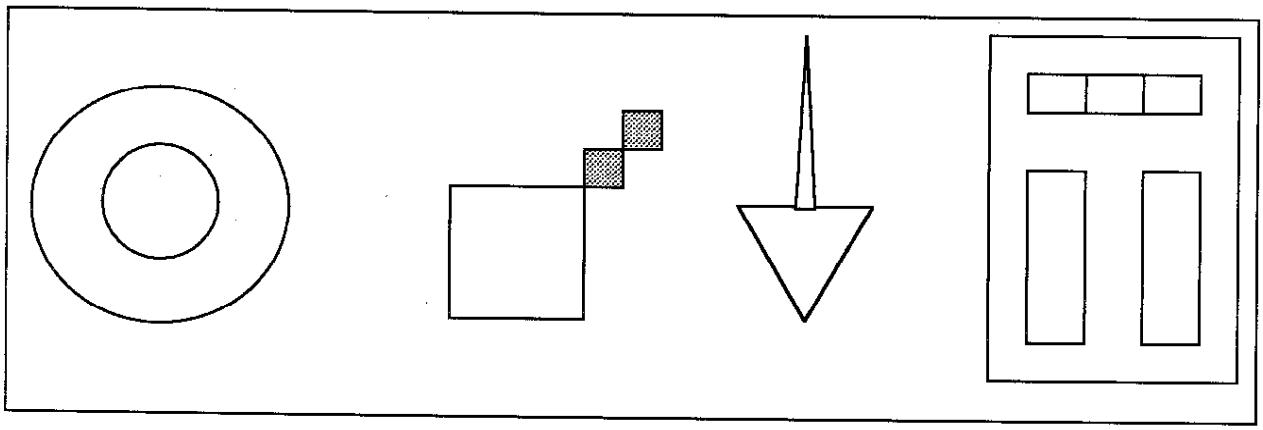
Triangle

Rectangle

Square

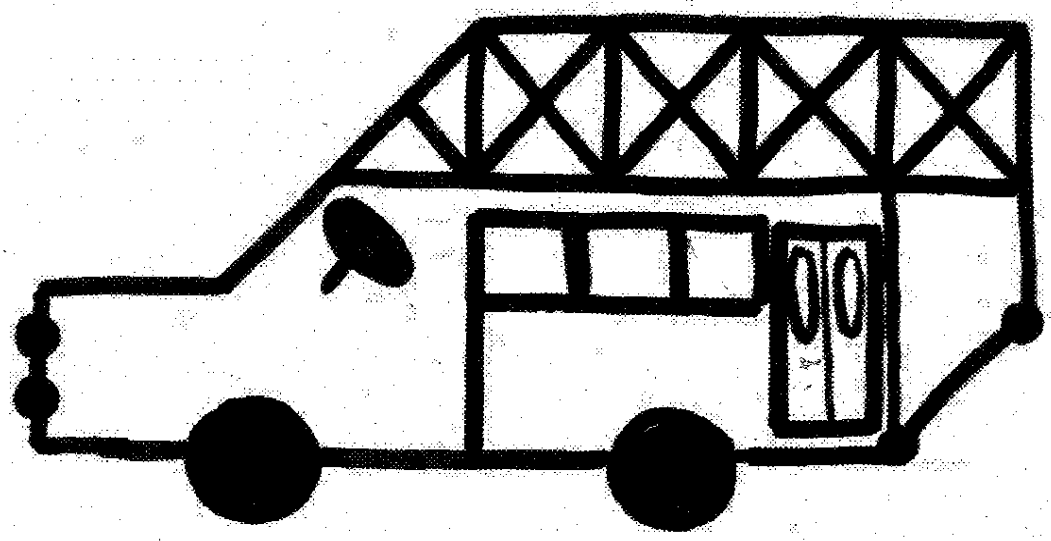


42. Write thc shape of following objects: circle, rectangle, triangle and square.



43. _____ _____ _____ _____

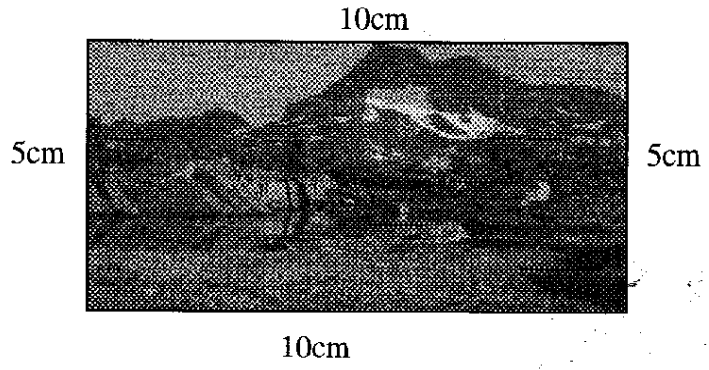
Count and write the number of different shapes in the following figure.



	Triangles		Circles
	Rectangles		Squares

Perimeter

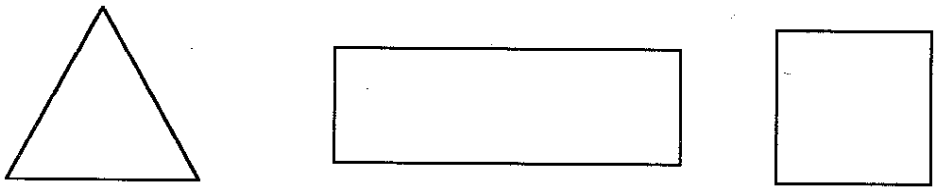
The perimeter is the length of the sides of an object



The length of the sides is:

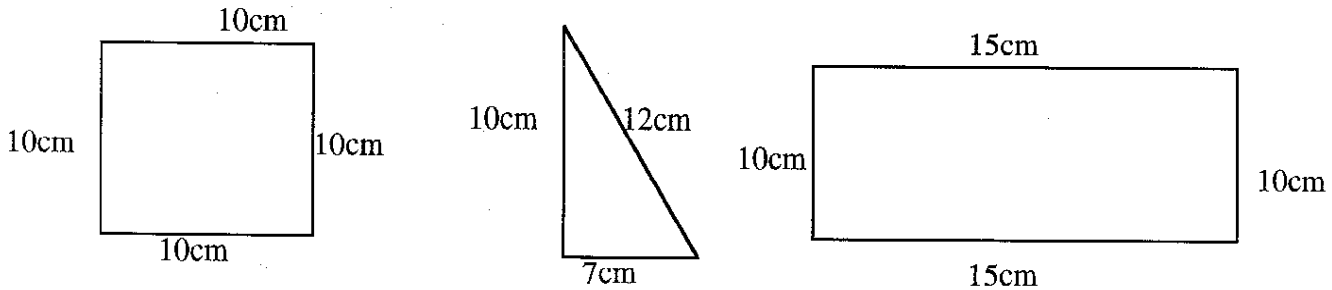
10 + 5 + 10 + 5 = 30 cm

44. Measure the sides of the following figures:



_____ _____ _____

45. Find the perimeter of the following figures



_____ _____ _____

Mathematics Scope and Sequence Chart

Math Concepts	I	II	III	IV	V	VI
Place Value	Pre number Concepts Tens; 1 – 99	Hundreds 100-999	Thousands 1000-100,000	Millions 7 Digit Numbers Add and Sub.	Billions 8 - 10 digit numbers Add. and Sub.	Trillion 10 - 13 digit numbers Add and Sub.
Addition and Subtraction	Addition & Subtraction of 1 - 99 and zero without carrying and borrowing	Addition & Subtraction till 999 and zero with carrying/borrowing up to tens	Whole numbers w/wo borrow & carry Repeated addition	Review of multiplication Table		
Multiplication and Division			Multiplication and division by 1 to 9 and zero	Multiplication & division by 10s, 100s, 1000s without decimals Multiply/Divide numbers by 2, 3 and 4 digit numbers	Review multiplication and division	Review multiplication and division by 10s, 100s, 1000s with decimals
Fractions	Color 1/2 and 1/4 of figures	Matching fraction 1/2, 1/3, 2/3, 1/4, 2/4, 3/4 with figures	Identification of fraction (1/2, 1/3, 2/3, 1/4, 2/4, 3/4, 1/5, 2/5, 3/5, 4/5) with figures	Proper fractions Same denominator Compare Add Subtraction	Fractions Four operations: add, subtract, multiply and divide	Conversion of fractions to decimals and vice versa Compare
Decimals					Multiply/divide by 10s, 100s, 1000s with decimals Compare, add and subtract	Decimals Four operations: add, subtract, multiply and divide Ratio Percent
Measurement	Comparison of short and long, big and small and thick and thin	span, foot, steps compare capacity of containers Time, months, days and hours	m, cm, kg Hours and minutes	Multiples and parts of km, hm, dm, m m, dc, cm, mm Conversion without decimals	Multiples and parts km, hm, dm, m m, dc, cm, mm Conversion with decimals	Review perimeter in m, dc, cm, mm Review area of circle, triangle, rectangle and square in m^2 ,dc^2 cm^2 mm^2
Money/Calendar	Coins and bills up to 100 Afs.	50 Afs, 100Afs And 500 Afs.	Review of 50, 100, 500 1000, 5000, 10,000 Afs Solar Calendar	Lunar Calendar	AD Calendar	
Geometry	Identify like and unlike shapes of circle, square, triangle, rectangle	Identify name and count shapes of circle, square, triangle, rectangle	Sides of triangle, square and rectangle Introd. to perimeter	Perimeters of triangles, circles, squares, rectangles Areas of squares, rectangles and Triangles	Areas of triangles, circles, squares, rectangles m^2 & cm^2	Volume of cubes, rectangular cubes and cylinders in m^3, cm^3

Class Four Math

Place Value up to 7 digits

The students will be able to:

1. Write the following numbers in the table below and read them.

16,569
880,201
1,063,421
9,980,095

Millions			***Thousands***			***Ones***		
100 Millions	10 Millions	Million	100 Thousands	10 Thousands	Thousands	Hundreds	Tens	Ones

2. Add and write the number in standard form:
1,500,000+620,000+53,000+2,700+300+85+9

3. Write the number in expanded form:
975,851

4. Arrange the following numbers in ascending order:

205,398	205,938	520, 480	501,695	312
6,304,520	8,932,590	6,315,480	8,923,600	6,192,840

5. Arrange the following numbers in descending order:

584,622	594,266	604,626	464,226
748,505	848,450	478,609	748,715

Multiplication and Division

6. Fill in the blanks in the following table:

×	1	2	3	4	5	6	7	8	9
0	0	0	0						
1			2				7		
2	2			8				16	
3			9			18			
4			8		20				36
5						30			
6		12					42		
7			21						
8					40				
9		18							81

7. Multiply the following numbers

876042	653210	7980432
× 7	× 6	× 8

8. Multiply one digit numbers by 10, 100, 1000

4 × 1 ten = 4 tens ..... 4 × 10 = 40

4 × 1 hundred = 4 hundreds ..... 4 × 100 = 400

4 × 1 thousand = 4 thousands ..... 4 × 1000 = 4000

9. Multiply two-digit numbers by 10, 100, 1000

	Thousands			Units		
	100 Thousands	10 Thousands	Thousands	Hundreds	Tens	Units
24 × 10				2	4	0
24 × 100			2	4	0	0
24 × 1000		2	4	0	0	0

10. Multiply the following numbers by counting the number of zeroes in the multiplier:

876042	653210	7980432
× 70	× 800	× 9000

11. Multiply two-digit numbers by two-digit numbers:

52	52	52
× 14	× 14	× 14
208 ← (4 × 52)	208	208
	520 ← (10 × 52)	520
		728

12. Multiply three-digit number by three-digit number:

528
×186
3168 ← (6 × 528)
42240 ← (80 × 528)
52800 ← (100 × 528)
98208

13. Multiply four-digit number by four-digit number:

3214
× 2132
6428 ← (2 ×3214)
9 6420 ← (30 ×3214)
321400 ← (100 ×3214)
6428000 ← (2000 ×3214)
6852248

14. Multiply three-digit numbers with zero in the unit place:

690
× 312
1380 ← (2 × 690)
6900 ← (10 ×690)
207000 ← (300 ×690)
215280

15. Multiply three-digit numbers with zero in the tens place:

321
×201
321 ← (1 ×321)
0000 ← (0 ×321)
64200 ← (200 ×321)
64521

16. Multiply four-digit numbers with zeroes in the tens and hundreds place:

```
  1024
 ×2609
 ------
  9216  <-- (9 * 1024)
 00000  <-- (0 * 1024)
 14400  <-- (600 * 1024)
2048000 <-- (2000 * 1024)
2671616
```

```
  2102
 ×1007
 ------
 14714  <-- (7 * 2102)
 00000  <-- (0 * 2102)
000000  <-- (0 * 2102)
2102000 <-- (1000 * 2102)
2116714
```

17. Multiply the following numbers:

210	205	3036	3035
×312	×150	×2032	×2302

18. Word Problem:
The fees at Habibia high school for class **4B** are sert at **1450** Afghanis per year.
There are **35** children in the class.
How much money is collected from class **4B**?

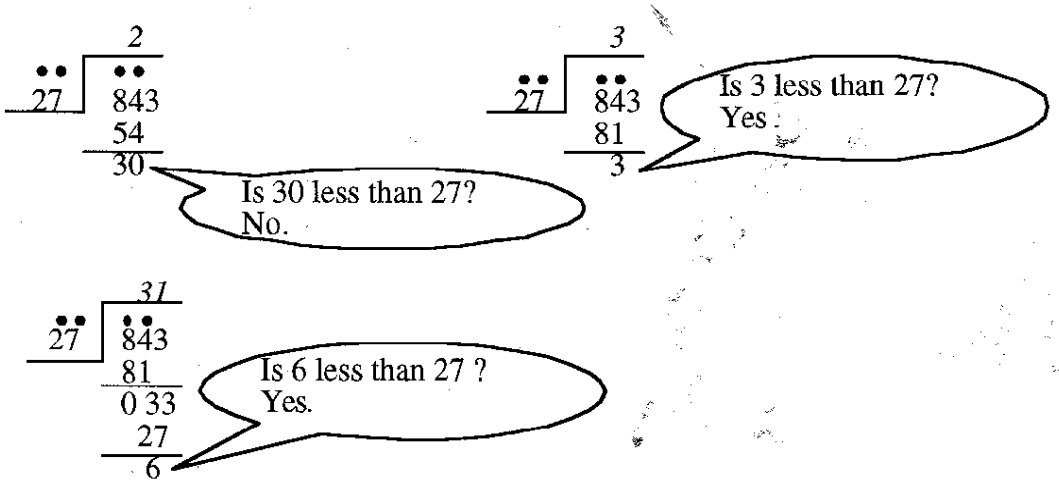
Division

19. Divide three digit number by one-digit number:

$684 \div 8 =$ _____

$9432 \div 7 =$ _____

20. Divide three-digit number by two-digit number:



To check the answer multiply the quotient by the divisor and add the remainder.

Quotient × Divisor + remainder = dividend

31 × 27 + 6 = 843

21. Word problem:

30 packets of sweets contain a total of 5280 sweets. How many sweets are there in each packet?

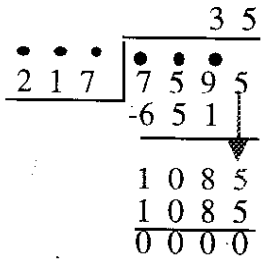
Division by 10, 100 and 1000

When a number is divided by 10, it moves one place to the right.
When a number is divided by 100, it moves two places to the right;
When a number is divided by 1000, it moves three places to the right.

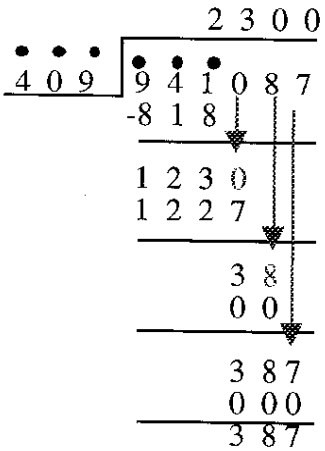
	Thousands		Units		
	10 Thousands	Thousands	Hundreds	Tens	Units
48000÷10		4	8	0	0
48000÷100			4	8	0
48000÷1000				4	8

0 = 4800
00 = 480
000 = 48

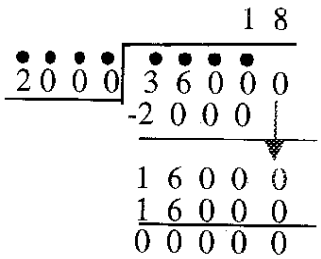
22. Divide 4 digit numbers by 3 digit numbers, 4 digit numbers by 4 digit numbers, 5 digit numbers by 4 digit numbers and 6 digit numbers by 3 digit numbers



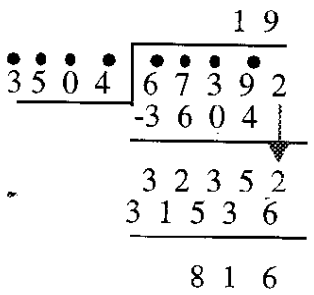
$7595 \div 217 = 35$
R = 0



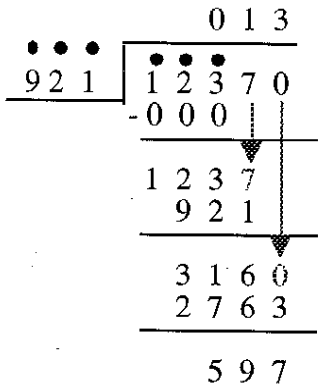
$941087 \div 409 = 2300$
R $\frac{387}{409}$



$36000 \div 2000 = 18$
R 0



$76392 \div 3504 = 19$
R $\frac{816}{3504}$



$12370 \div 921 = 13 \text{ R } \frac{397}{921}$

23. Divide:

217 | 9575

532 | 4265

184 | 438027

1253 | 219184

Fractions

Even numbers

Any number multiplied by 2 gives an even number.

2 × 1 = 2

2 × 2 = 4

2 × 7 = 14

Odd numbers

One added to any even number gives an odd number.
0 + 1 = 1
2 + 1 = 3
4 + 1 = 5
6 + 1 = 7
8 + 1 = 9

24. Use the table to fill in the blanks:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Even number

2		6		10		14		18	

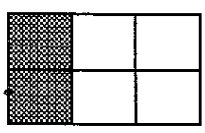
Odd numbers

1		5			11			17	

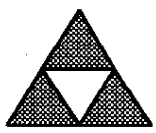
Prime numbers

2, 3, 5, 7 ,11, 13, 17, 19 etc are prime numbers, because they are divisible only by themselves and one.

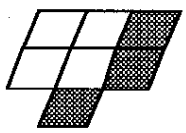
25. Write the fraction under each figures:



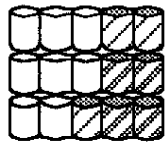
2/6



3/4



3/7



7/15

26. Write the following fractions in ***descending*** order:

2/7, 6/7, 4/7, 3/7 _____
7/8, 1/8, 3/8, 5/8 _____

27. Write the following fractions in ***ascending*** order:

3/4, 3/7, 3/10, 3/5 _____
6/10, 6/7, 6/8, 6/9 _____

Even numbers are divisible by 2:

Example: $\frac{12}{6}$ is reduced to $\frac{1}{6}$

Any number whose digits add up to a multiple of 3 is divisible by 3:

Example: $\frac{12}{15}$ is reduced to $\frac{4}{5}$

Any number with 5 or zero in the unit place is divisible by 5:

Example: $\frac{5}{25}$ is reduced to $\frac{1}{5}$

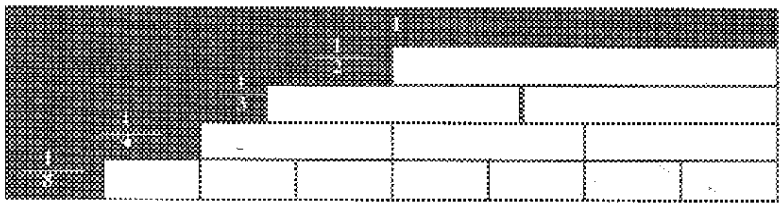
You can reduce a fraction by dividing the numerator and the denominator by the same number. This is called reduction of a fraction.

$$\frac{5}{10} \overset{\div 5}{=} \frac{1}{2}$$

28. Reduce the following terms:

$\frac{12}{30}$ $\frac{4}{12}$ $\frac{9}{27}$ $\frac{20}{30}$ $\frac{10}{25}$

29. Look at the diagram and answer the questions:



How many $\frac{1}{2}$ are in 1= _____

How many $\frac{1}{3}$ are in 1= _____

How many $\frac{1}{4}$ are in 1= _____

How many $\frac{1}{8}$ are in 1= _____

30. Reduce and compare the following fractions by writing $<$, $>$ or $=$:

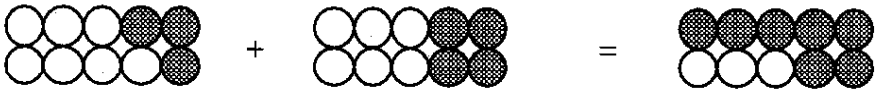
1/7 ☐ 14/21 1/3 ☐ 6/24

1/9 ☐ 27/45 45/81 ☐ 36/81

5/12 ☐ 3/10

Addition of Fractions with like denominators

Example:



3/10 + 4/10 = 7/10

31. Add similar fractions with like denominators:

4/9 + 5/9 = _____

4/12 + 7/12 = _____

3/20 + 14/20 = _____

Subtraction fractions of similar or like denominator:

Example:

$$\frac{7}{8} - \frac{5}{8} = \frac{2}{8}$$

32. Reduce and subtract the following fractions

9/10 – 6/10 =

11/10 – 6/12 =

19/24 – 4/24 =

33. Word problem

Ahmad finished 1/8 of his painting on Friday.
He finished 5/8 of his painting on Saturday.
How much of the paining was finished by Saturday?

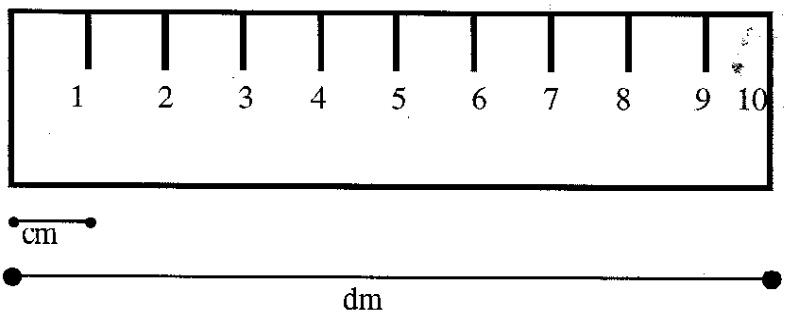
Measurement

Length

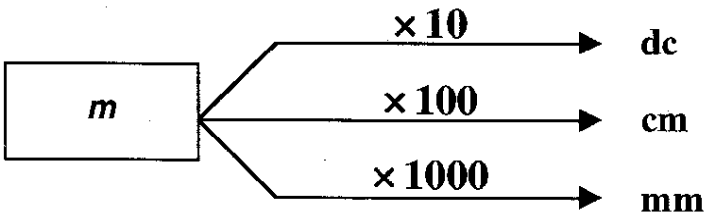
Mahy countries use the unit Meter to measure length.
A meter has small parts: decimeter (dc), centimeter (cm), and millimeter (mm).

1m	**=**	**10 cm**
1m	**=**	**100 cm**
1m	**=**	**1000mm**

1dm = 10 cm



To convert from high low measure we multiply by multiples of 10.
To convert from a unit of a meter to its parts: dc, cm, and mm, we multiply by multiples of ten as indicated in the diagram below.

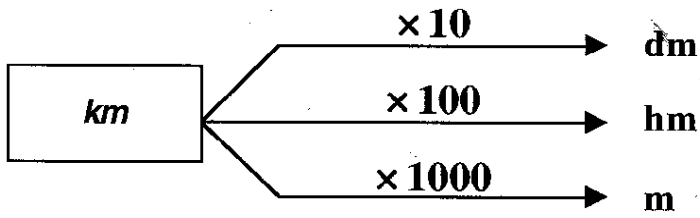


34. Change m into dm, cm, mm :

M	dm	cm	mm
8			
25			
170			

The multiples of a meter are:

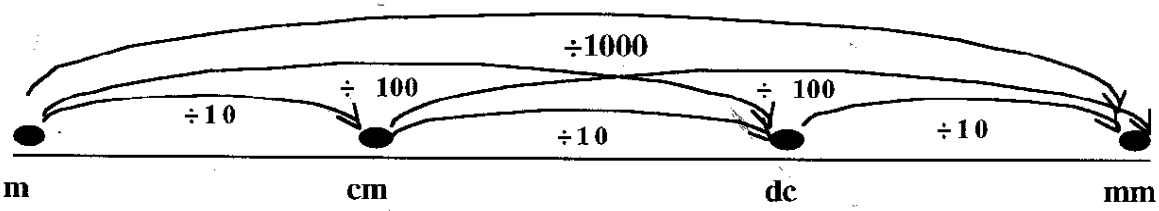
10 m = 1 dm	**Decameter (dm)**
100 m = 1 hm	**Hectometer (hm)**
1000 m = 1 km	**Kilometer (km)**



35. Change Km into Hm, Dkm, m:

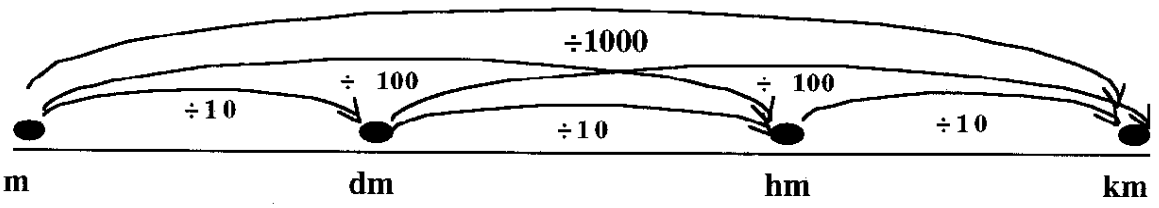
Km	hm	dm	m
7			
82			
326			

To convert from low to high measure we divide by multiples of 10.
To convert from a unit of a meter to its decameter, hectometer, and kilometer, we divide by multiples of ten as indicated in the diagram below.



36. Complete the following table.

Mm	cm	dm	m
3000			
8000			
12000			



37. Complete the following table.

M	Dkm	Hm	Km
11000			
52000			
122000			

Calendar

Lunar Calendar

There are twelve months in one year.
Muharm-ul-Haram, Safar-ul-muzafar, Rabi-ul-Awal, Rabi-ul-Akhir, Jamadi-ul-Awal. Jamadi-ul-Akhir. Rajab-ul-Murajab. Sha'ban-ul-Mu'azm. Ramazan-ul-Mumbarak. Shawal-ul-Mukaram, Ziqadat-ul-Haram, Zil Hajat-ul-Haram,
The Present Lunar year is 1420
The lunar year has 354 days.
One week has seven days.
The days of the week are: Sat, Sun, Mon, Tue. Wed, Thurs, Fri.

Muharam-ul-Haram
Lunar 1420

Hamal, /Saur
Solar 1378

Thu.	Wed.	Tue	Mon	Tue.	Sat	Fri
7	4	5	4	3	2	1
14	13	12	11	10	9	8
21	20	19	18	17	16	15
28	27	26	25	24	23	22
					30	29

38. Answer these questions:

How many days are there in the month of Moharam? _____

On which date of Moharam Ashura was celebtated in Afghanistn? _____

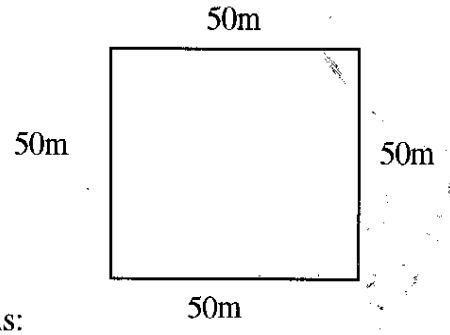
How many Saturdays are there in the month of Moharm? _____

The month of Moharam begins on the _____ of Hamal 1376.

Perimeter

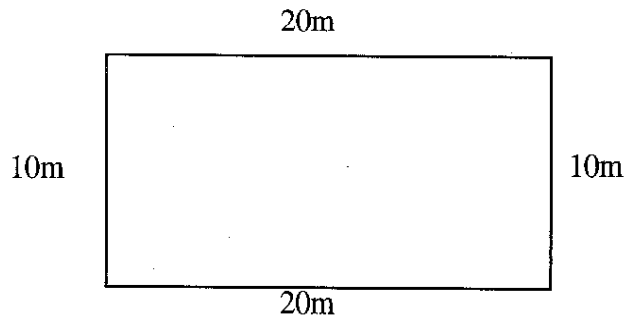
The perimeter of a shape is the distance around it.

39. Find the perimeter of a square garden when one of the sides is 50 meters long.

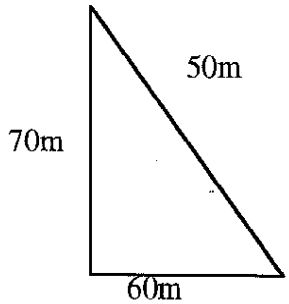


40. Solve the following problems:

Ahmad bought a piece of land.
He wants to build a wall around it before building a house.
What is the length of the wall around the lot of land?



Najeeb has an apple garden which is triangle in shape.
He wants to build a fence around it.
How many meters of barbed wire will he need?



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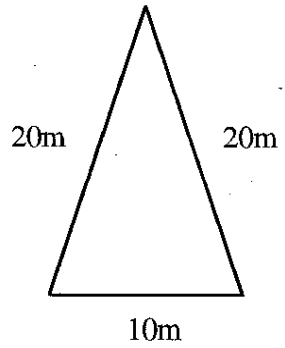
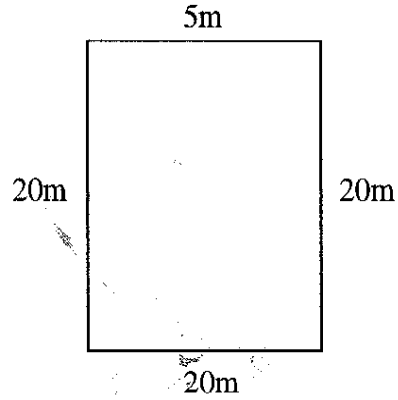
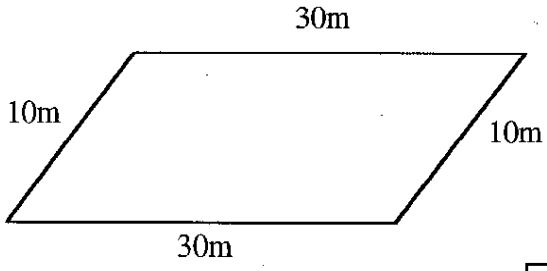
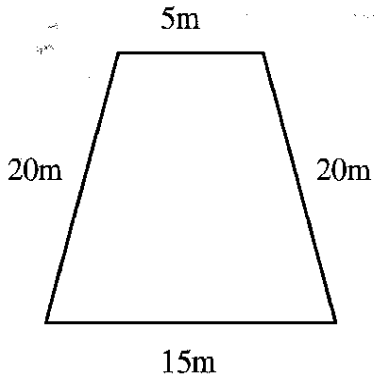
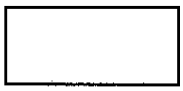
41. Calculate the perimeter of the following shapes and then compare them by writing >, < or equal.

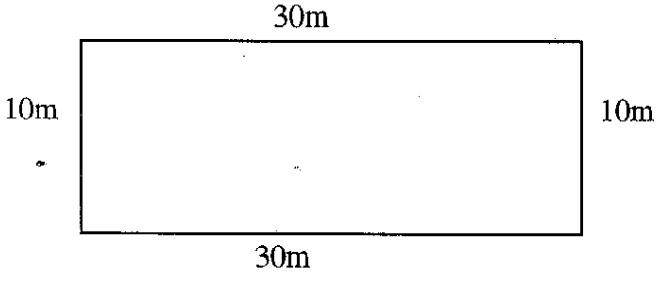


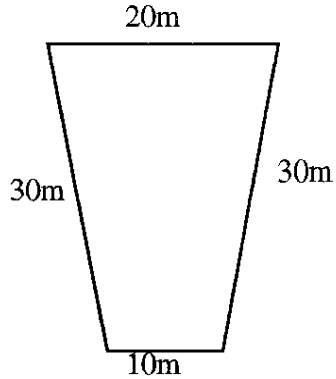








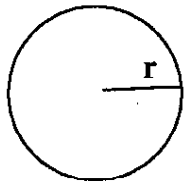




Perimeter of a circle

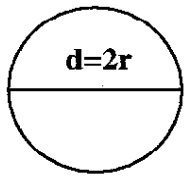
The Radius (r)

The radius of circle is the distance from the center of a circle to a point on the circumference of a circle.



Diameter (d)

The diameter of a circle is a distance across the circle through its center.



π

π is a constant number equal to 22/7 used in measuring perimeter and area of a circle.

Perimeter

Perimeter of a circle is the distance around the circle

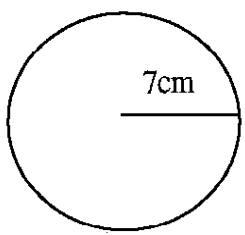
The perimeter of circle is:

D× π

or

2r × 22/7

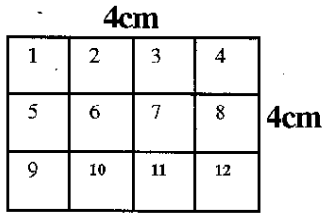
0. Find the perimeter of the following circle:



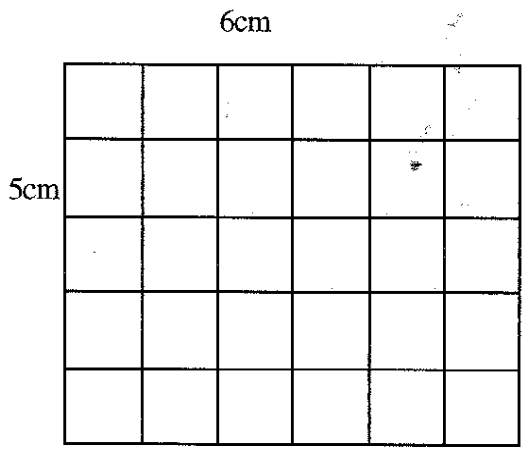
Area

The amount of surface a shape covers is called its area.

The area is the number of squares inside the figure.



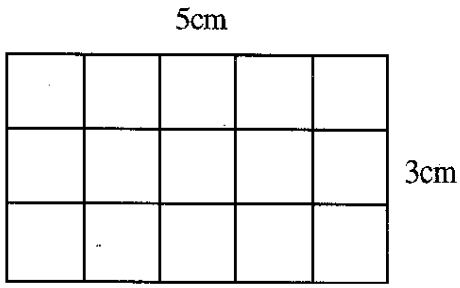
The area of the above is 3mx4m=12meter squares or 12 m^2.
We can say that area of a figure is the number of squares that fit inside it.



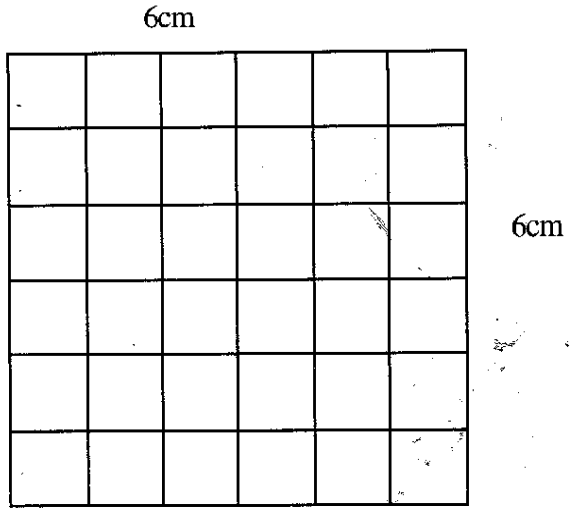
The area of a rectangle is calculated by the multiplying its length by its width.

Area = l × w

0. Find the area of the following rectangle:



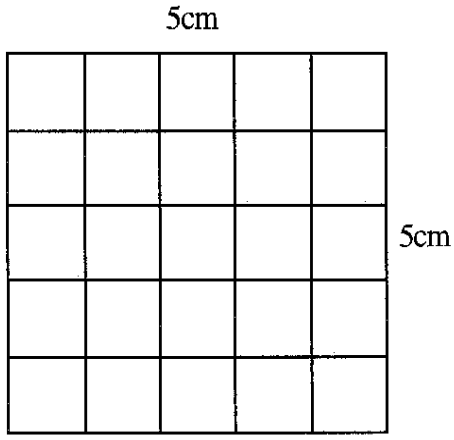
The area of a square is the number of squares inside it.



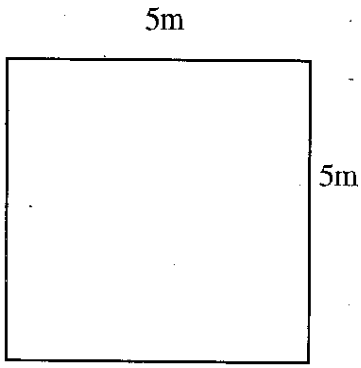
The area of a square is calculated by multiplying its sides.

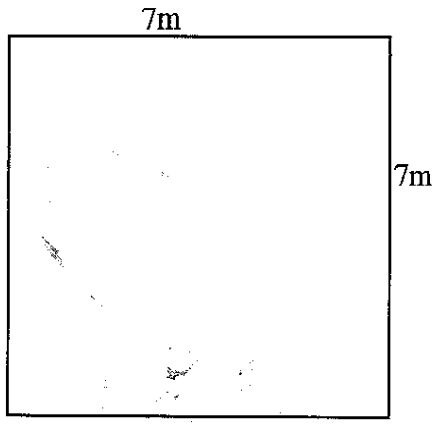
Area = side × side

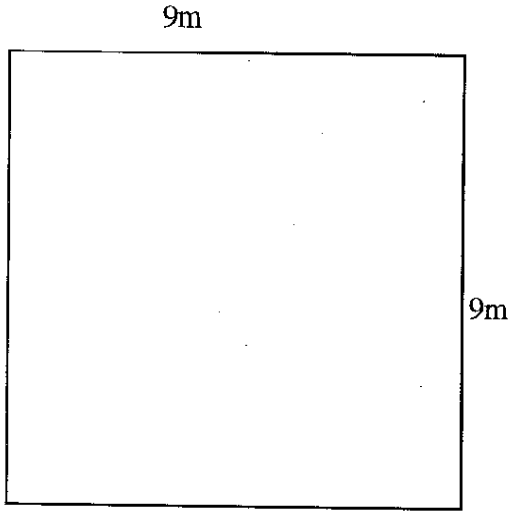
44. What is the area of this square:

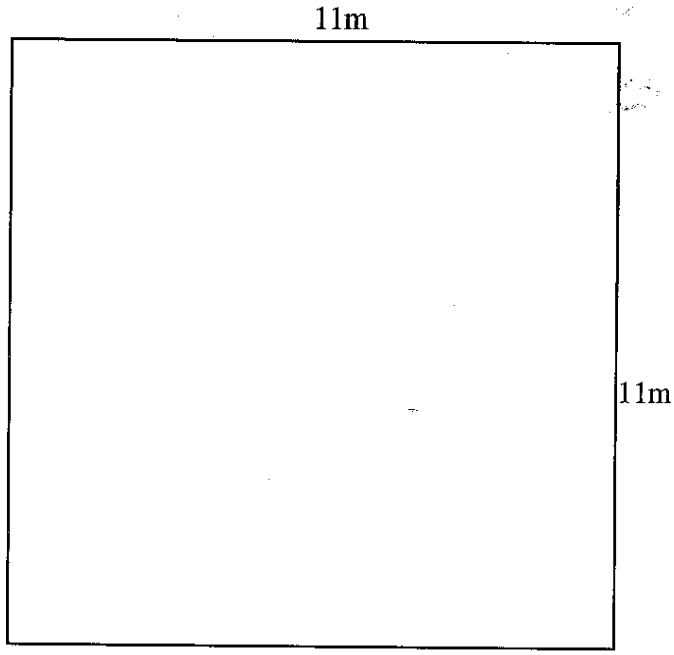


45. Calculate the areas of the following squares:



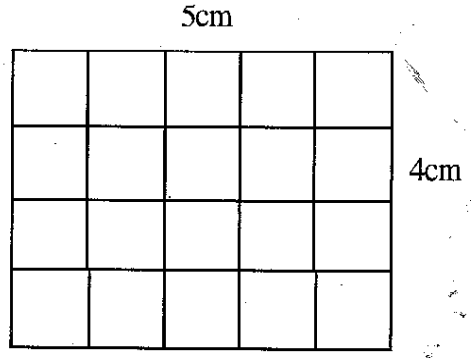




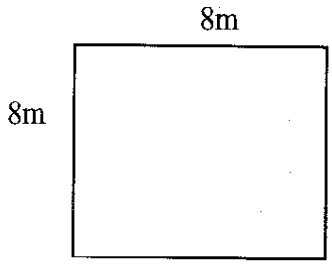


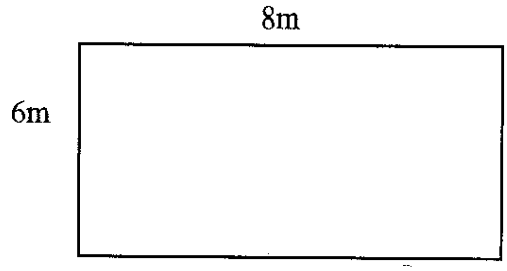
46. Solve the following problems:

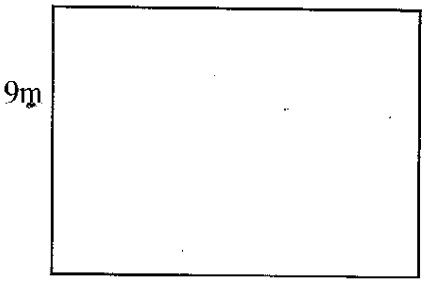
Akram's family is putting in a new patio. The patio is 5m long and 4m wide what is the area of the patio?

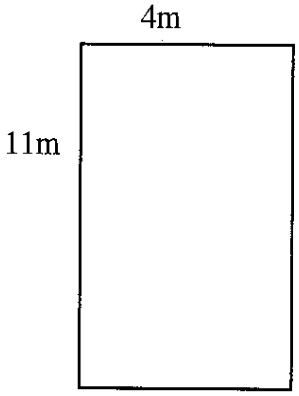


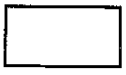
47. Compare the areas of the following lawns by writing >, < and =











48. Solve the following problems:

Halim has a field 5 km Long and 4 km wide.
Find the area of Halim's field.

_____

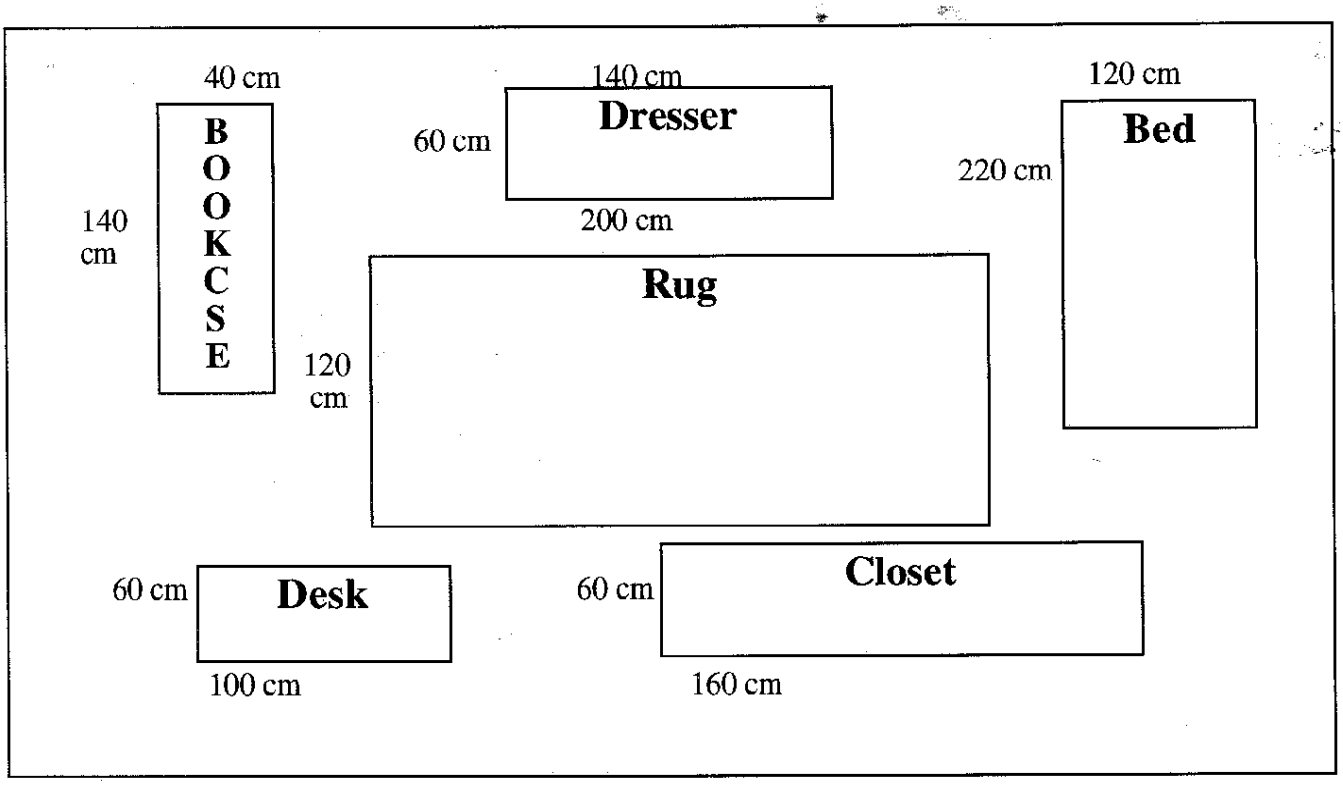
Najeeb has a square garden. Each side of the garden is 9 km long.
Find the area of Najeeb's garden.

_____

Compare the areas of Halim's field and Najeeb's garden by using $>$ $<$ or $=$.

The area of Halim's field		The area of Najeeb's garden

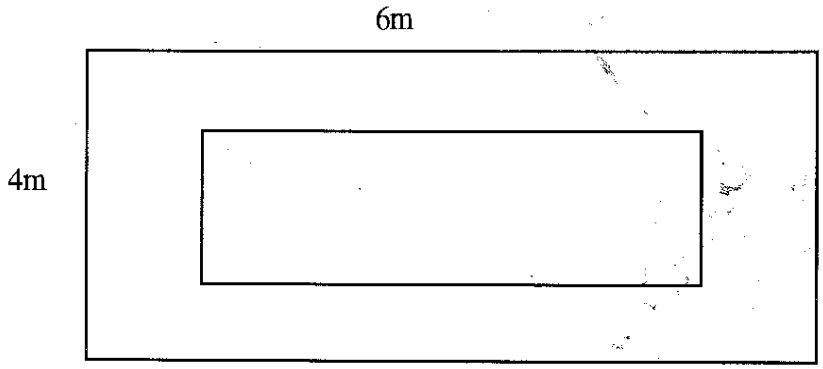
49. Ahmad has bought some things for his living room as shown in the figure below.
Study the figure below and answer the following questions.



What is the area of the bookcase? _____
What is the area of the desk? _____
Which item has the greatest area? _____
Which item has the greatest perimeter? _____

50. Word problem

Ahmad wants to buy a piece of carpet for his room.
The length of the room is 6m and the width is 4m.
He wants to leave one-meter space on each side and cover the remaining room.
What would be the area of the carpet that Ahmad needs to buy.



Length and Width of a Rectangle and a Square

To find the width or the length of a rectangle or square we divide the area by the length or width.

Width = area ÷ length

Example:

Area = 96m²

Length = 12m

Width = 96 ÷12 = 8m

Length = area ÷ width

Example:

Area=81 cm²

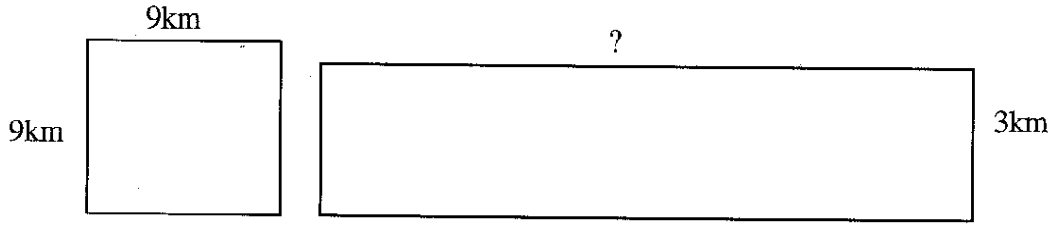
Width = 3cm

Length =81 ÷ 3 = 27cm

51. Complete the following table:

Length	Width	Area
20cm		100cm²
	6cm	54cm²
10cm	22cm	
	3cm	36cm²
13km	11km	

52. Find the length of a rectangle that has the same area as the given square.



Math Concepts	I	II	III	IV	V	VI
Place Value	Pre number Concepts Tens; 1 – 99	Hundreds 100-999	Thousands 1000-100,000	Millions 7 Digit Numbers Add. and Sub.	Billions 8 - 10 digit numbers Add. and Sub.	Trillion 10 - 13 digit numbers Add and Sub.
Addition and Subtraction	Addition & Subtraction of 1 - 99 and zero without carrying and borrowing	Addition & Subtraction till 999 and zero with carrying/borrowing up to tens	Whole numbers w/wo borrow & carry Repeated addition	Review of multiplication Table		
Multiplication and Division			Multiplication and division by 1 to 9 and zero	Multiplication & division by 10s, 100s, 1000s without decimals Multiply/Divide numbers by 2, 3 and 4 digit numbers	Review multiplication and division	Review multiplication and division by 10s, 100s, 1000s with decimals
Fractions	Color 1/2 and 1/4 of figures	Matching fraction 1/2, 1/3, 2/3, 1/4, 2/4, 3/4 with figures	Identification of fraction (1/2, 1/3, 2/3, 1/4, 2/4, 3/4, 1/5, 2/5, 3/5, 4/5) with figures	Proper fractions Same denominator Compare Add Subtraction	Fractions Four operations: add, subtract, multiply and divide	Conversion of fractions to decimals and vice versa Compare
Decimals					Multiply/divide by 10s, 100s, 1000s with decimals Compare, add and subtract	Decimals Four operations: add, subtract, multiply and divide Ratio Percent
Measurement	Comparison of short and long, big and small and thick and thin	span, foot, steps compare capacity of containers Time; months, days and hours	m, cm, kg Hours and minutes	Multiples and parts of km, hm, dm, m m, dc, cm, mm Conversion without decimals	Multiples and parts km, hm, dm, m m, dc, cm, mm Conversion with decimals	Review perimeter in m, dc, cm, mm Review area of circle, triangle, rectangle and square in m^2 ,dc^2 cm^2 mm^2
Money/Calendar	Coins and bills up to 100 Afs.	50 Afs. 100Afs And 500 Afs.	Review of 50, 100, 500 1000, 5000, 10,000 Afs. Solar Calendar	Lunar Calendar	AD Calendar	
Geometry	Identify like and unlike shapes of circle, square, triangle, rectangle	Identify name and count shapes of circle, square, triangle, rectangle	Sides of triangle, square and rectangle Introd. to perimeter	Perimeters of triangles, circles, squares, rectangles Areas of squares, rectangles and Triangles	Areas of triangles, circles, squares, rectangles m^2 & cm^2	Volume of cubes, rectangular cubes and cylinders in m^3, cm^3

Class Five Math

Place Value up to 8-10 digits

The student will be able to:

1. Write the following numbers in the table below and read them.

   2,800,991
   34,682,159
   238,938,213
   730,294,923,189

Billions			***Millions***			***Thousands***			***Ones***		
100 Billions	10 Billions	Billions	100 Millions	10 Millions	Millions	100 Thousands	10 Thousands	Thousands	Hundreds	Tens	Ones

2. Write the number to represent the circled numerals:

   2,1(3)7,659 3,478,21(3) 190,75(3),418 (3),147,008,603

3. Arrange these numbers in ***ascending*** order:

   20,143,708 14,316,895 524,179,610 612,453,798

   _____ _____ _____ _____

4. Arrange in ***descending*** order:

   649,124,393 1,265,065,002 13,237,173,411

   _____ _____ _____

5. Write in standard form:

   500,000,000+80,000+30,000+70+2 _____
   800,000+70,000+400+60+8 _____
   400,000+30,000+70+8 _____
   90,000+10+7 _____

6. Write in expanded form:

39,405,276 _____

61,824,132 _____

135,400,761 _____

479,806,432 _____

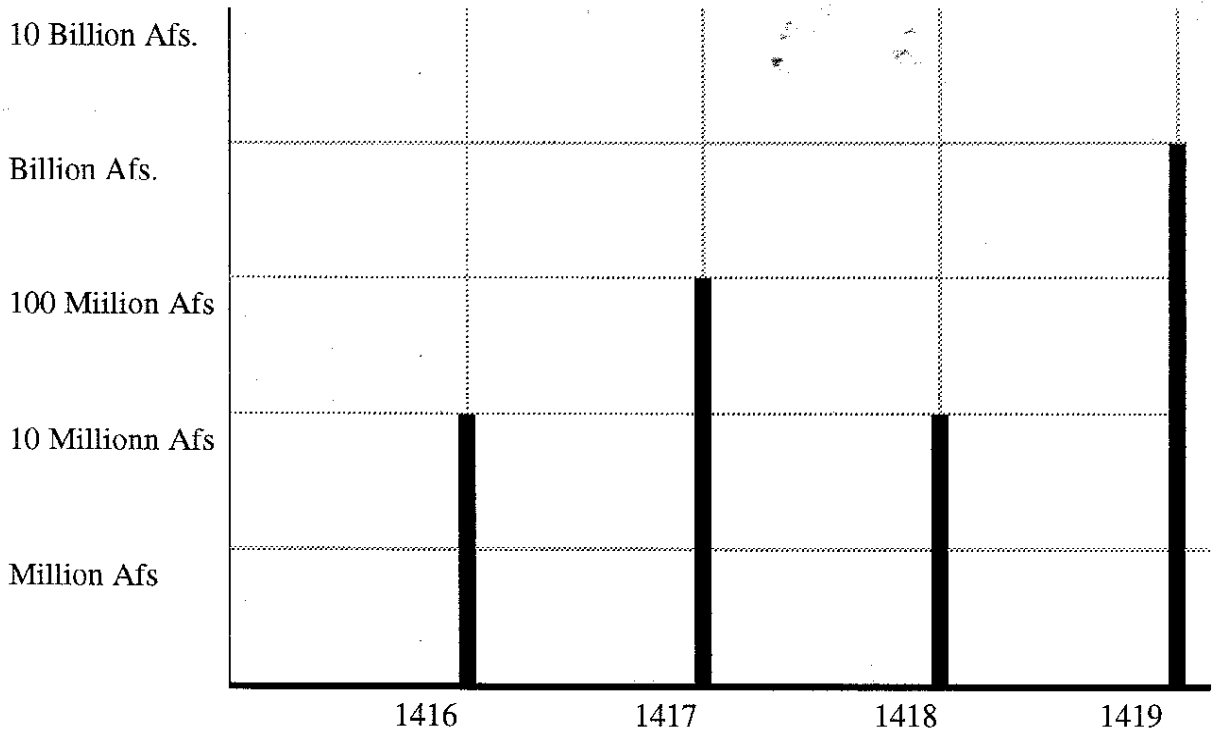
7. Write <, >, = in the box

743621102 ☐ 758,925,106

16,878,783 ☐ 16,783,403

3,976,999 ☐ 39,882,111

8. The following graph indicates the income of Afghanistan generated from exports over a period of four years



Estimate the income generated during 1416 and 1419

_____

Calculate the difference between these two years.

_____

9. Multiply the following:

864	4325	9388
× 9	× 87	×654

10. Divide the following:

150 ÷ 9 =

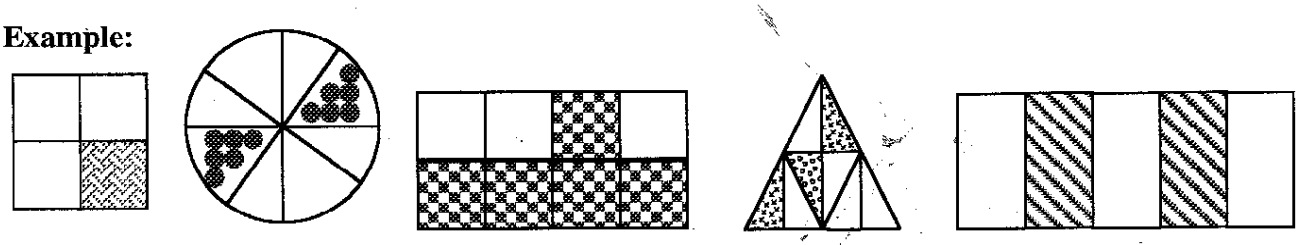
49608 ÷ 68 =

Fractions

Proper Fraction

Fractions with the smaller numerator than the denominator are called proper fractions.

Example:



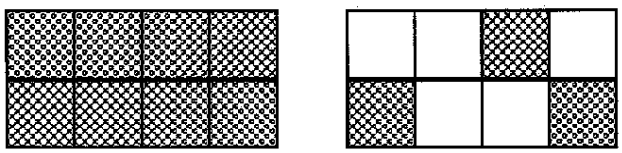
$\frac{1}{4}$ $\frac{2}{8}$ $\frac{5}{8}$ $\frac{3}{8}$ $\frac{2}{5}$

11. Identify and circle the proper fractions

13/3 1/8 2/7 22/8

Improper Fractions

Fractions with bigger numerator than denominator are called improper fraction.



$1 = \frac{8}{8}$ $\frac{3}{8} = \frac{11}{8}$

Changing improper fraction to mixed fraction

In changing improper fraction to mixed fraction, we divide the numerator by denominator.

Example:

$$\frac{25}{3} = 8\frac{1}{3}$$

12. Change the following improper fractions to mixed fractions

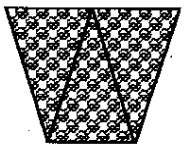
52/9, 32/5, 120/6

Changing mixed fractions to improper fractions

In changing mixed fractions to improper fraction, we multiply the whole number by denominator and add the numerator.

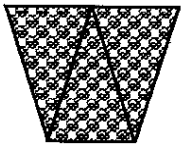
Example:

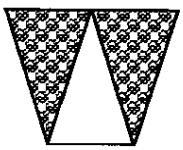
$1\frac{2}{3}$



Fractions with equal numerator and denominator is equal to one whole number

$$1 = \frac{3}{3}$$

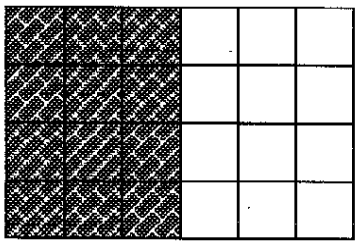




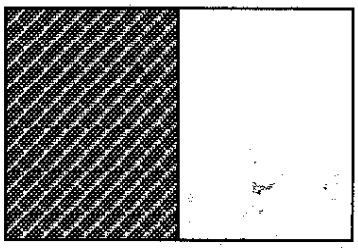
$$\frac{3}{3} + \frac{2}{3} = \frac{5}{3}$$

Equivalent Fractions

The shaded figures are equal. The first figure has 12 of 24 parts and the second figure has one of 2 parts.



$\frac{12}{24}$



$\frac{1}{2}$

We reduce fractions by dividing numerators and denominators by the same number

$$\frac{12}{24} \overset{\div 12}{\underset{\div 12}{=}} \frac{1}{2}$$

13. Reduce the following fractions by dividing the numerator and denominator by the same number

16/24 72/81 12/60

14. Fill in the missing numerator and denominator in the fractions below

1/2 = 2/ 11/13 = 22/ 4/7 = /35

15. Reduce these fractions and compare with >, < and =

4/16 ☐ 5/20

72/81 ☐ 4/36

25/55 ☐ 30/66

Least Common Multiple (LCM)

The least common multiple of many numbers is the largest number that is divisible by all.

Example:
Find the LCM of 8, 4, 12, 24, 36

	8	**4**	**12**	**24**	**36**
2	4	2	6	12	18
2	2	1	3	6	9
2	1	1	3	3	9
3	1	1	1	1	3
3	1	1	1	1	1

LCM is 2 ×2 ×2 ×3 ×3 ×3 = 72

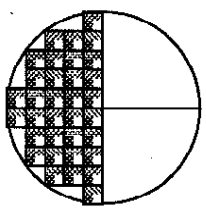
16. Follow the example and find the LCM for each set of numbers

42 and 35
12 and 60
9, 18, 12, 7
4, 6, 8, 10

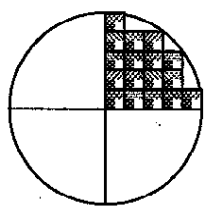
Addition of Fraction

Addition of fractions of like denominators

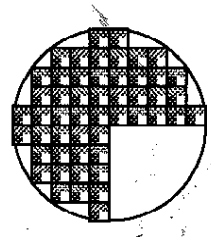
When the denominators are the same we ad the numerators only. As shown the in the example.



$\frac{2}{4}$

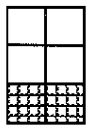


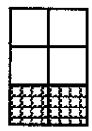
$\frac{1}{4}$

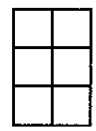


$\frac{3}{4}$

17. Add and color the figure according to the answer:







2/6 + 3/6 = ?

18. Add the following fractions:

2/11 + 9/11 = 4/12 + 6/12=

5/9 + 3/9= 8/15 + 1/5 + 3/15=

Improper Fractions

When the answer has a numerator that is bigger than the denominator, we divide the numerator by the denominator to get a mixed fraction.

Example:

4/9 + 7/9 = 11/9 = $1\frac{2}{9}$

Improper Fractions

When the answer has a numerator that is bigger than the denominator, we divide the numerator by the denominator to get a mixed fraction.

Example:

$4/9 + 7/9 = 11/9 = 1\frac{2}{9}$

19. Add the fractions below and write the answer as mixed number:

3/4 + 2/4 =
8/15 + 9/15 =
3/8 + 5/8 + 9/8 =

Addition of mixed fractions

In adding mixed fractions, we add the like fractions first.

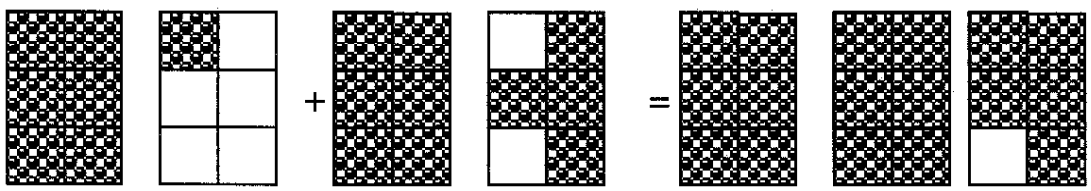
$$\frac{1}{6} + \frac{4}{6} = \frac{5}{6}$$

Then we add the whole number
1 + 1 = 2

Then we write the whole number and the fraction together.

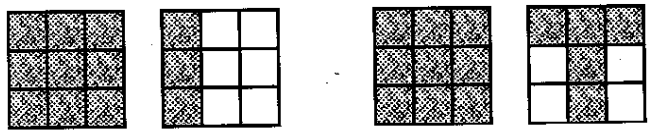
$2\frac{5}{6}$

Example:



$$1\frac{1}{6} + 1\frac{4}{6} = 2\frac{5}{6}$$

20. Add:



$1\ \frac{3}{9} + 1\ \frac{5}{9} =$

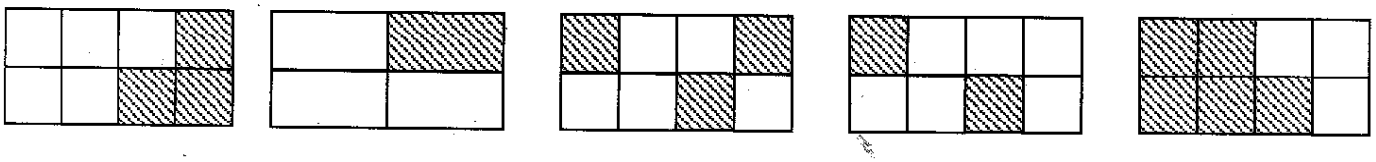
$1\frac{1}{3} + 3\frac{5}{6} =$ _____

$5\frac{3}{10} + 4\frac{1}{10} + 5\frac{1}{10} =$ _____

$1\frac{1}{9} + 5\frac{2}{9} + 2\frac{3}{9} =$ _____

Addition of fractions with different denominators

In adding fractions with different denominator we need to make the fractions equivalent, as show in the example below:



$$\frac{3}{8} + \frac{1}{4} = \frac{3}{8} + \frac{2}{8} = \frac{5}{8}$$

Least Common Multiple (LCM)

To find the common denominator, we find the factors of the different denominators and we multiply them to find the number that is divisible by all the denominators. The common denominator is divided by each of the denominators and multiplied by the numerators to make the fractions equivalent before adding them

Example:

$$\frac{\mathbf{1}}{\mathbf{3}} + \frac{\mathbf{1}}{\mathbf{4}} + \frac{\mathbf{4}}{\mathbf{12}} =$$

	3	**4**	**12**
2	3	2	6
2	3	1	3
3	1	1	1

The LCM $= 2 \times 2 \times 3 = 12$

$$\frac{\mathbf{1}}{\mathbf{3}} + \frac{\mathbf{1}}{\mathbf{4}} + \frac{\mathbf{4}}{\mathbf{12}} = \frac{\mathbf{4+3+4}}{\mathbf{12}} = \frac{\mathbf{11}}{\mathbf{12}}$$

21. Add the following fractions after you find the common denominator.

2/3 +1/6 =

1 2/9 + 1 1/3 =

2 3/12 + 2/4 =

22. Solve the following problems

Hamida drank 2/5 liter of cola on Thursday,
3/4 liter on Friday and
3/5 liter on Sunday.
How much cola did she drink all together? Write the answer in mixed fractions.

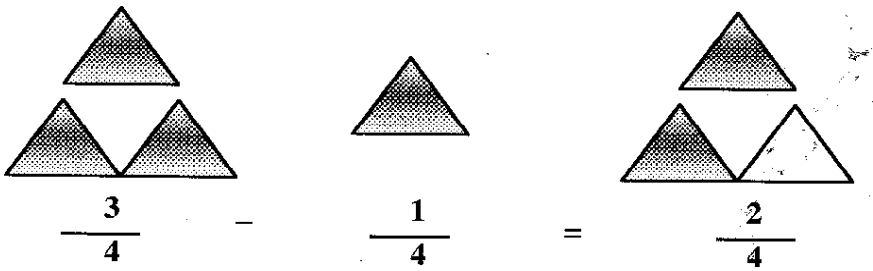
Two tables, one is 7/10 meter long and
the other is 1 1/10 meter long. What is the length of two tables put together.

Subtraction of Fractions

Subtraction of fractions with the same denominators:

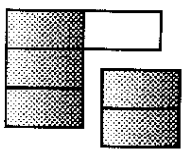
When the denominators are the same, we subtract only the numerators. The denominator remains the same.

Example:
Remember how to subtract the fraction:



$$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$$

23. Subtract:



5/6 - 2/6 = ____

9/10 - 6/10 = ____

11/12 - 5/12 = ____

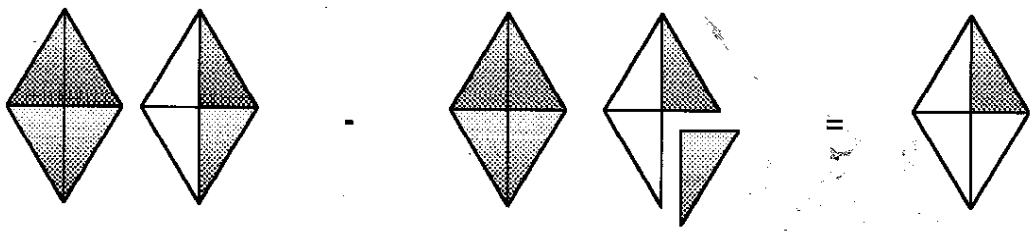
12/15 - 4/15 = ____

17/18 - 10/18 = ____

Subtraction of Mixed numbers with equal denominators

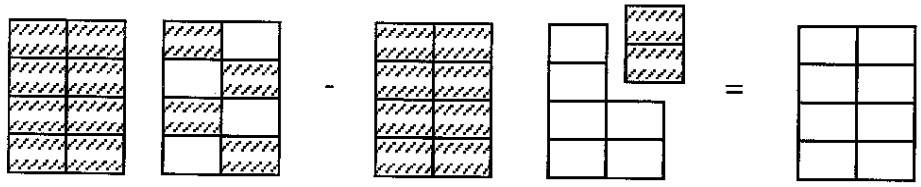
In subtracting mixed fractions, we subtract the whole number first:
Then we subtract the fractions:

Example:



1 $\frac{2}{4}$ - 1 $\frac{1}{4}$ = $\frac{1}{4}$

24. Subtract the following mixed numbers and color the figure according to the answer:



1 4/8 - 1 2/8 = _____

25. Subtract the following mixed numbers:

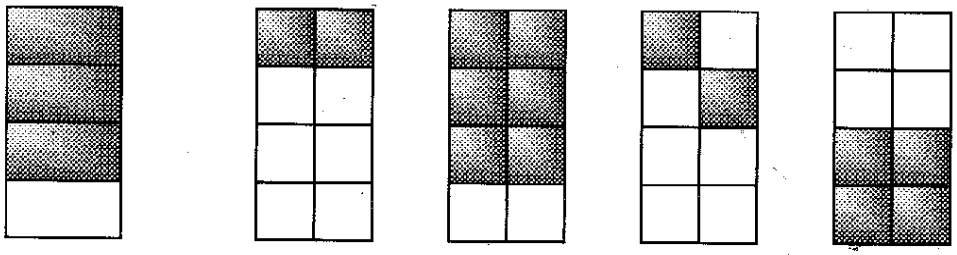
$4\frac{4}{10} - 2\frac{6}{10} =$

$8\frac{7}{8} - 6\frac{5}{8} =$

$6\frac{7}{9} - 3\frac{4}{9} =$

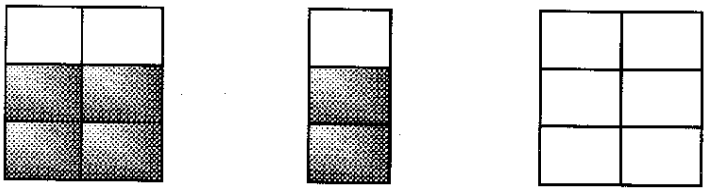
Subtraction of fractions with different denominators:

When we subtract fractions with different denominators, we change the denominators to a common denominator, then we subtract.



$$\frac{3}{4} - \frac{2}{8} = \frac{6}{8} - \frac{2}{8} - \frac{4}{8}$$

26. Subtract the following fractions with different denominators, and color the figure according to the answer:



4/6 - 2/3 = _____

27. Subtract the following fractions with different denominators:

2/5 – 1/10 =

5/6 – 2/3 =

Mixed numbers with different denominators:

When we subtract mixed numbers, we subtract whole numbers first, then we find a common denominator for the fractions:

Example:

$$4\frac{3}{4} - 2\frac{5}{8}$$

4 – 2 = 2

$$\frac{3}{4} - \frac{5}{8} = \frac{6}{8} - \frac{5}{8} = \frac{1}{8}$$

The answer is $2\frac{1}{8}$

28. Subtract

$$3\frac{5}{9} - 1\frac{1}{3}$$

$$4\frac{1}{2} - 4\frac{1}{8}$$

$$5\frac{6}{12} - 2\frac{9}{12}$$

Subtraction of mixed numbers with borrowing from whole numbers:

First we find the common denominator.
If the first fraction is smaller that the second fraction
Borrow one more number and change it to fraction
Add this to the other fraction
Then we subtract the whole numbers

Example:

$$3\ \frac{1}{3} - 1\ \frac{3}{4}$$

$$\frac{1}{3} - \frac{3}{4} = \frac{4}{12} - \frac{9}{12}$$

$$\overset{2}{\not{3}} \longrightarrow \quad 1 = \frac{12}{12}$$

$$\frac{12}{12} + \frac{4}{12} = \frac{16}{12}$$

$$\frac{16}{12} - \frac{9}{12} = \frac{7}{12}$$

2 – 1 = 1

The answer is $1\frac{7}{12}$

29. Subtract

$2\ \frac{1}{4} - 1\ \frac{2}{3}$ $\qquad$ $5\frac{2}{5} - 1\frac{7}{10}$ $\qquad$ $3\frac{3}{8} - 1\frac{3}{4}$

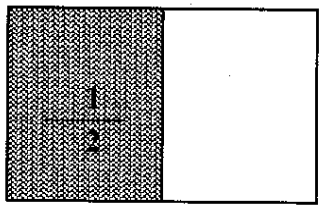
30. Word Problem:

Raihana cut $3\ \frac{3}{8}$ meters of pink silk of a roll of cloth which was $10\ \frac{3}{8}$ m long. How many meters of the cloth are left?

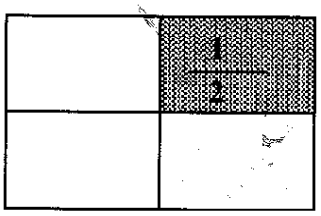
Multiplication of simple fractions

In multiplying fractions, we multiply the numerators by numerator and the denominators by the denominators.

Example:



$\frac{1}{2}$



$\frac{1}{2}$ of $\frac{1}{2}$

The answer is:

$$\frac{1}{2} \times \frac{1}{2} = \frac{1}{2}$$

31. Multiply the following fractions:

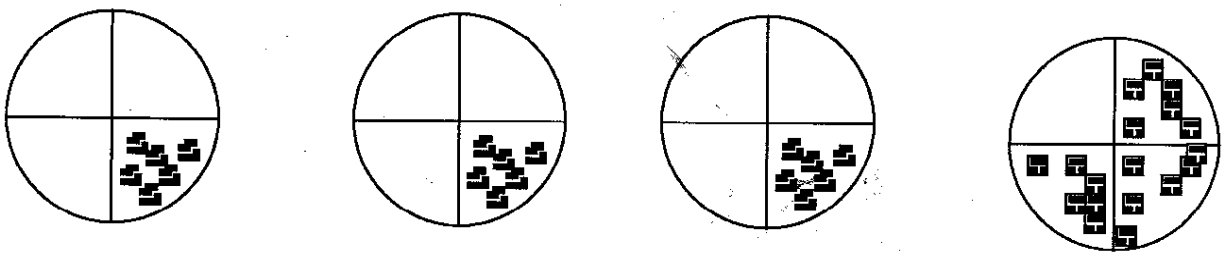
4/6 × 3/2

5/12 × 8/9

Multiplication of Fractions

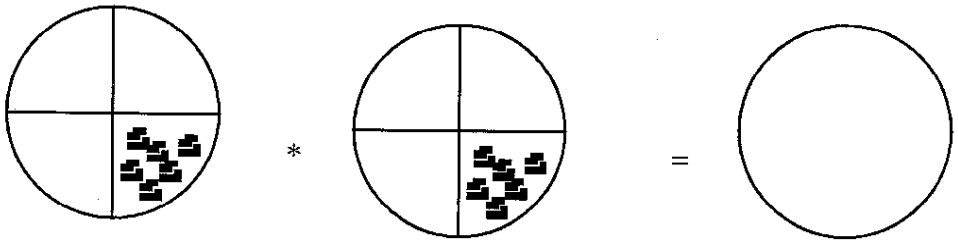
We can replace repatitive addition by multiplication as show below

Example:



$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{1+1+1}{4} = \frac{3}{4}$$

32. Complete the following



Multiplication of Fractions and whole numbers:

Example:

$$\frac{1}{4} \times 3 = \frac{1}{4} \times \frac{3}{1} = \frac{3}{4}$$

33. Multiply:

1/5 × 3 3/7 × 2

Multiplication of mixed fractions

In multiplying mixed fractions:
Change the mixed fractions to improper fractions
Then reduce the fractions by dividing the numerators and denominators by the same number, and
Multiply the numerators and denominators.

Example

$$4\frac{2}{5} \times 3\frac{3}{4}$$

$$\frac{22}{5} \times \frac{15}{4}$$

$$\frac{\cancel{22}^{11}}{\cancel{5}_{1}} \times \frac{\cancel{15}^{3}}{\cancel{4}_{2}} = \frac{33}{2} = 16\frac{1}{2}$$

The answer is $= 16\frac{1}{2}$

34. Multiply the following mixed fractions:

$$3\frac{1}{5} \times \frac{5}{8}$$

$$\frac{3}{7} \times 5\frac{4}{6}$$

$$4\frac{1}{4} \times 2\frac{1}{9}$$

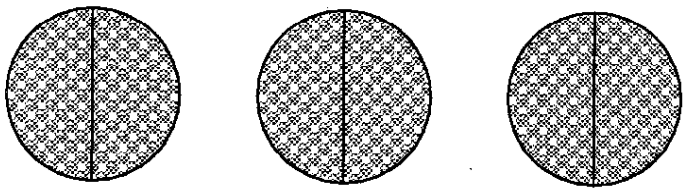
35. Word Problems

The price of one Kg of wheat is 12 Afs.
What is the price of 21/2 Kg of wheat? _____

Division Fractions:

Division Whole Numbers by Fractions

Example:



$\frac{1}{2}\ \frac{1}{2}$ $\frac{1}{2}\ \frac{1}{2}$ $\frac{1}{2}\ \frac{1}{2}$

How many $\frac{1}{2}$ s are in 3 = 6

$$3 \div \frac{1}{2} = \frac{3}{1} \times \frac{2}{1} = \frac{6}{1} = 6$$

Inverse

36. Find the quotient

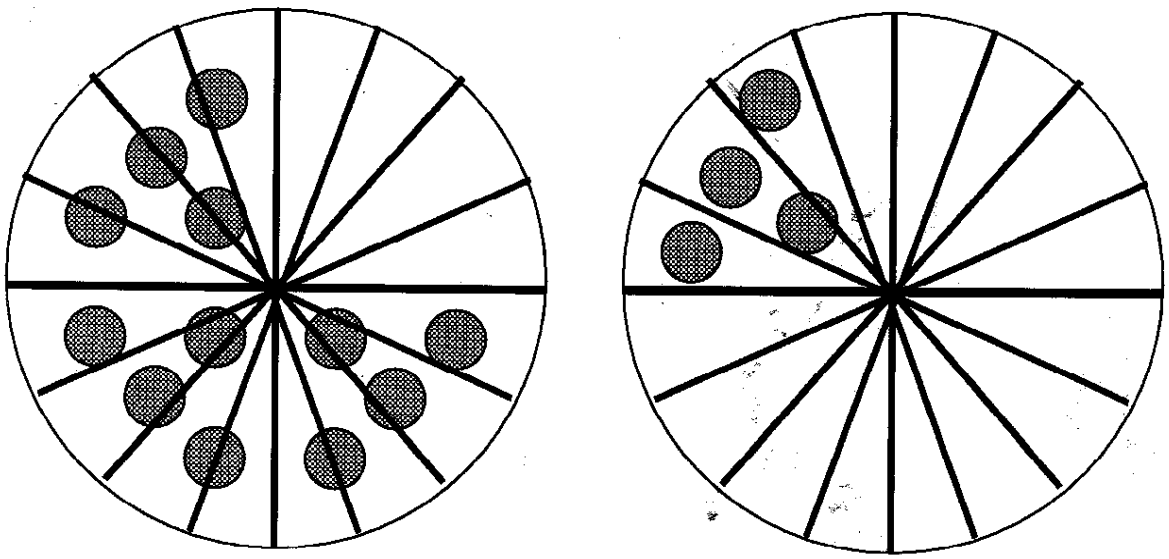
$10 \div \frac{1}{2}$

$81 \div \frac{1}{9}$

$250 \div \frac{1}{25}$

Dividing fractions by whole numbers

Example



$$\frac{3}{4} \div 4 = \frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$$

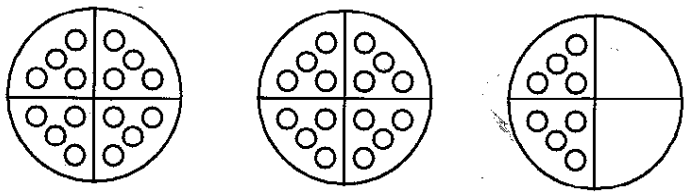
Inverse

37. Find the quotient

5 ÷ 8 / 3 2/9 ÷ 4 5/9 ÷ 9

Dividing mixed fractions

Example



How many $\frac{1}{4}$ s are in $2\frac{1}{2} = 10$

$$2\frac{1}{2} \div \frac{1}{4} = \frac{5}{2} \times \frac{4}{1} = \frac{20}{2} = 10$$

38. Find the quotient:

$9\frac{1}{2} \div 3 =$

$4\frac{9}{1} \div 2\frac{1}{2} =$

$6\frac{4}{7} \div 2\frac{1}{4} =$

39. Word problems

A pile of math textbooks on Mr Hassan's table is exactly $14\frac{2}{5}$ cm.
If each book is $1\frac{2}{5}$ cm thick.
How many books make the pile?

_____

Ahmad has 36 chocolate bars. He gave $\frac{4}{9}$ of them to his friend Karim.
Then he shared the rest among himself and his other 4 friends.
How many chocolate bars does he get?

_____

Decimal fractions

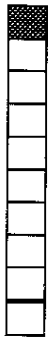
A fraction with a denominators of 10, 100, 1000 can also be written as a decimal fraction:

$\frac{1}{10} = 0.1$

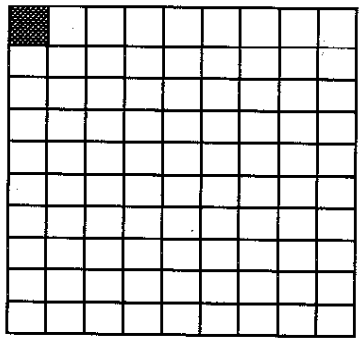
$\frac{1}{100} = 0.01$

$\frac{1}{1000} = 0.001$

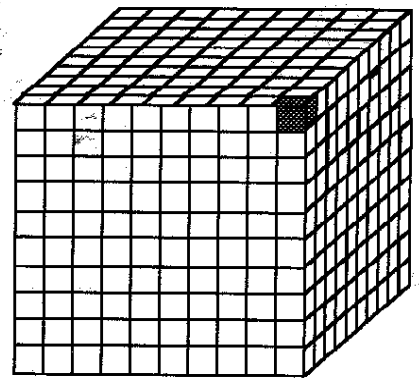
Example



$\frac{1}{10}$



$\frac{1}{100}$



$\frac{1}{1000}$

40. Write these fractions as decimal fractions

2/10
6/100
70/100
18/1000
190/1000

Decimal fractions Place Value Table

Thousands	Hundreds	Tens	Units	Decimal Point	Tenths	Hundredths	Thousandths
	4	2	1	•	5		
		6	1	•	0	5	
		7	1	•	0	0	5

41. Write the following decimal fractions in the decimal fractions place value table:

3.5
101.35
35.101
1000.114
114.1000
93.009

Example:

Place the following digits in the place value table and write the decimal fractions:

1 in the unit place
3 in the tenths place
8 in the hundredths place

the decimal fraction is 1.38

42. Place the following digits in the place value table and write the decimal fractions:

9 in the unit place
0 in the tenths place
4 in the hundredths place
6 in the thousandths place

_____

Example

Identify the value of the circled digit:

9 3.0 6 (1)

The answer is: 1 is in the thousandths place value

43. Identify the value of the circled digits:

1 4.0(3) 2 _____

2 5.(3) 27 _____

6 4 5. 2 2(3) _____

Changing Common Fractions to Decimal Fractions

To change common fractions to decimal fractions, we divide the numerator by the denominator:

Example:

$$\frac{4}{5} = 0.8$$

44. Change the common fractions below to decimal fractions:

3/5 15/50 125/500

Changing Mixed Fractions to Decimal Fractions

To change mixed fractions to decimal fractions, we keep the whole numbers on the left and the decimal fractions on the right.

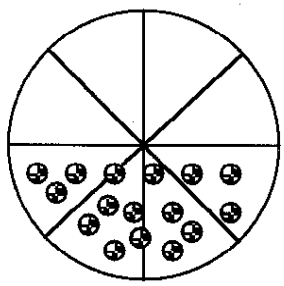
Emample:

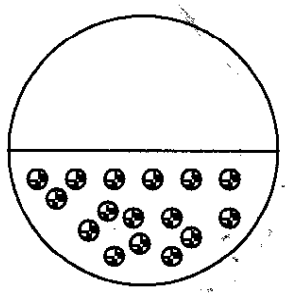
$$1\ \frac{1}{1000} = 1.003 \qquad 2\ \frac{3}{4} = 2.75$$

Changing Decimal fractions to Common Fractions

To change decimal fractions to common fractions, we write numbers in the tenths place with the denominator of 10, in the hundredths place with a denominator of 100 and in the thousandths place with a denominator of 1000.

Example:





$$0.5 = \frac{\cancel{5}\ 1}{\cancel{10}\ 2} = \frac{1}{2}$$

45. Change the following decimal fractions to common fractions:

0.25 1.5 4.175

Comparing Decimal Fractions

Example:

0.3 > **0.03**

2.4 < **3.3**

0.25 = **0.2500**

46. Compare the following decimal fractions using **>, <, =**

0.2 ☐ 0.02 0.27 ☐ 0.72 0.5 ☐ 0.5000

Addition of Decimal fractions

In adding decimal fractions, the decimal points are placed under each other:

Example
0.3 + 0.7

Units	Decimal Points	Tenths
0	•	**3**
+ 0	•	**7**
1	•	**0**

47. Add the following decimal fraction

Units	Decimal Points	Tenths
0	•	9
+ 0	•	6

Units	Decimal Points	Tenths
0	•	8
+ 0	•	5

Units	Decimal Points	Tenths
2	•	8
+ 7	•	4
1	•	0

Units	Decimal Points	Tenths	Hunderdths
4	•	7	1
3	•	6	7

48. Word Problem

Seddiq spent 0.25 of his money for buying clothing,
and 0.5 of his money on buying sweets for Eid.
How many parts of his money has he spent? _____

Subtracting Decimal Fractions:

In subtracting decimal fractions, the decimal points are place under each other.

Example

5.4 – 3.7

Units	Decimal Points	Tenths
4 5	•	1 4
- 3	•	7
1	•	7

49. Subtract these decimal fractions:

Units	Decimal Points	Tenths	Hundredths
4	•	7	4
- 3	•	5	2

Tens	Units	Decimal Points	Tenths	Hundredths	Thousandths
7	8	•	4	4	5
- 6	4	•	2	5	4

50. Word Problem

Ahmad had 12.5m of cloth.
He gave his sister 2.75m.
How many meters are left?

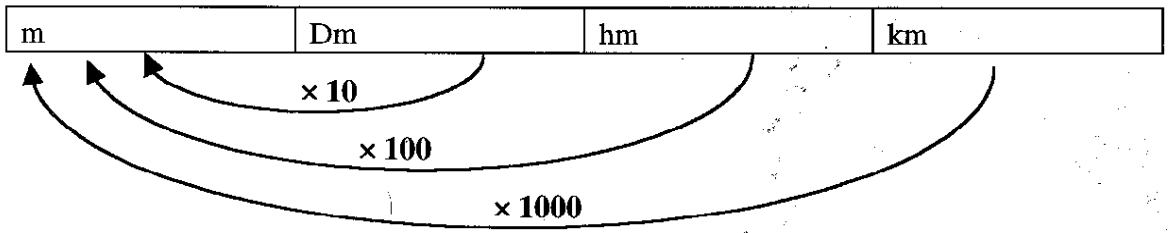
Measurement

Units of Measurement

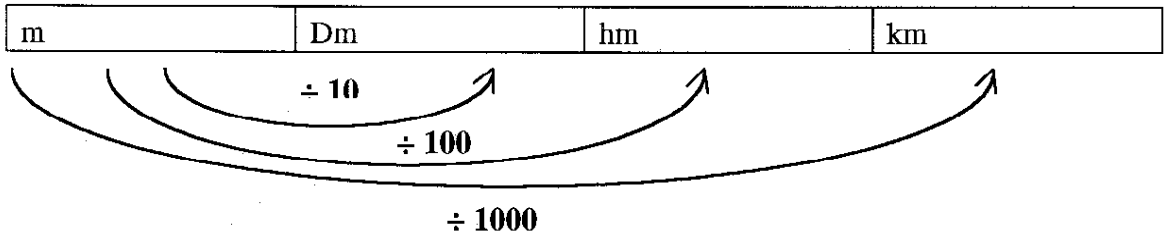
Meter is a unit used to measure length. It has multiple and parts.

Multiple and Parts of Meter

To change large units of measurement to smaller units of measurement, we multiply by 10, 100, and 1000 as indicated in the diagram.



To change small units of measurement to large units of measurement, we divide by 10, 100, and 1000 as indicated in the diagram.



Fill in the blanks in the table below:

m	dm	hm	km
			20
		500	
	260		
10,000			
			10
2500			

51. Word Problems:

Ahmad's house is 3 Km away from the Pule Khishti Mosque.
How many meters does he walk when he goes to pray on Friday both ways, going and coming back?

The perimeter of a football playground is 5000 m.
What is the distance around the field in Hm?

The length of the classroom is 8m.
What is the length of that classroom in cm?

- The door of the classroom is 20000mm high. What is its height in meters?

51. Word Problems:

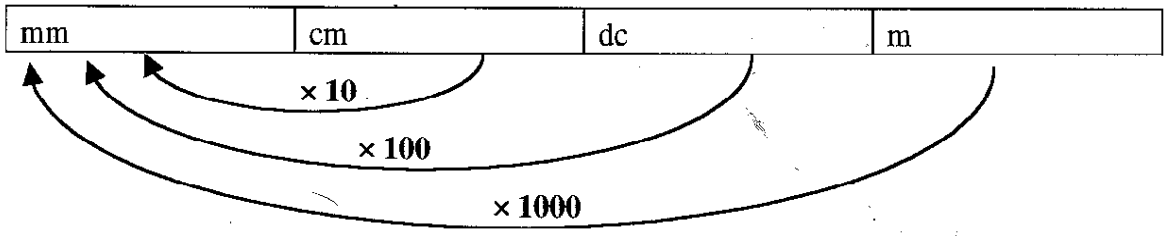
Ahmad's house is 3 Km away from the Pule Khishti Mosque.
How many ***meters*** does he walk when he goes to pray on Friday both ways, going and coming back?

The perimeter of a football playground is 5000 m.
What is the distance around the field in ***Hm***?

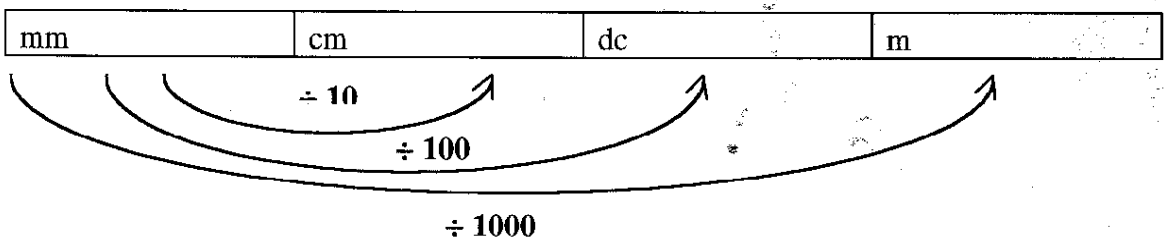
The distance between Fatima's house and her school is 500m.
What is the distance between Fatima's house and her school in ***dm***?

Parts of a Meter

To change large units of measurement to smaller units of measurement, we multiply by 10, 100, and 1000 as indicated in the diagram.



To change small units of measurement to large units of measurement, we divide by 10, 100, and 1000 as indicated in the diagram.



52. Fill in the blanks in the following table:

m	dm	cm	Mm
10			
			40,000
	50		
		1500	
40			
			500,000

53. Word Problems:

The length of the classroom is 8m.
What is the length of that classroom in cm?

The door of the classroom is 2000mm high.
What is its height in meters?

Khalid's ruler is 30cm.
What is the length of the ruler in dm?

Calendar

AD Calendar

AD stands for Anna Domino that means after birth of Jesus.
There are 12 months in a year.
There are 52 weeks in a year, and each week has seven days.
The days of the week are Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday.
There are 10 years in a decade;
There are 100 years in one century.

The year is 1999

The months of the year are indicated in the table below:

Months	Days
January	31
February	28
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
November	30
December	31

54. Answer these questions:

After how many years are there 29 days in the month February? _____
How many days are there in a year, if February has 28 days? _____
After how many months will it be the year 2000? _____

Study the calendar below and note that Eid of Ramadhan-ul-Mubarak falls on January18, 19 and 20.

Ramadhan	**January**	**Juddi**
Shawal	**1999**	**Dalw**
1419		**1377**

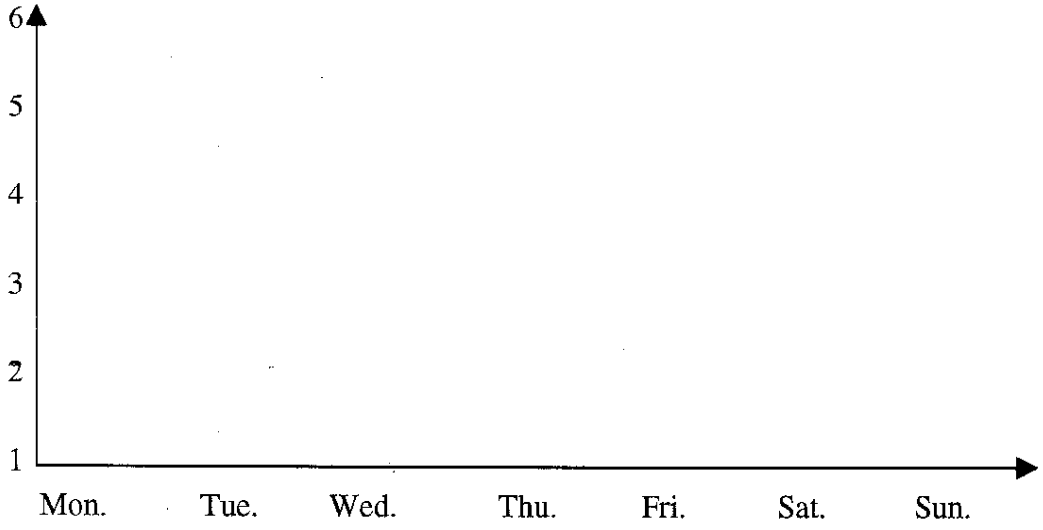
Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				14 1 11	15 2 12	16 3 13
17 4 14	18 5 15	19 6 16	20 7 17	21 8 18	22 9 19	23 10 20
24 11 21	25 12 22	26 13 23	27 14 24	28 15 25	29 16 26	30 17 27
1 18 28	2 19 29	3 20 30	4 21 1	5 22 2	6 23 3	7 24 4
8 25 5	9 26 6	10 27 7	11 28 8	12 29 9	13 30 10	14 31 11

18, 19 and 20 of January are Eid Ramadhan-ul-Mubarak

55. Answer the following question

14 of Ramadhan 1419 correspond to _____ January 1999.
29 of Juddi (Capricorn) 1377 correspond to _____ January 1999.
Eid days of Ramadhan-ul-Mubarak correspond to ___, ____, ____ of January 1999.
How many days are there in January? _____
Which month of the AD calendar is January? _____
What are the dates of Eid days in January? _____

How many Mondays, Tuesdays, Wednesdays, Thursday s, Fridays and Sunday s are in January. Draw in the graph given below:



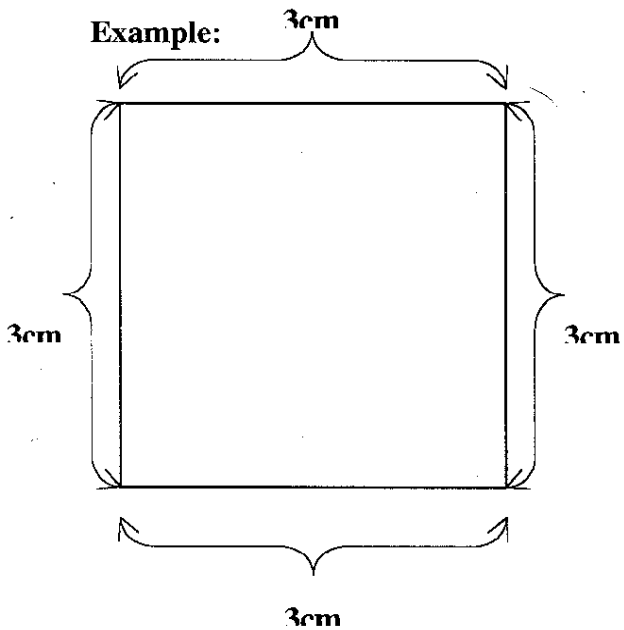
Geometry

Perimeters of Squares, Rectangles, Triangles and Circles

The distance around a figure is called the perimeter of the figure.

The Perimeter of a Square

Example:

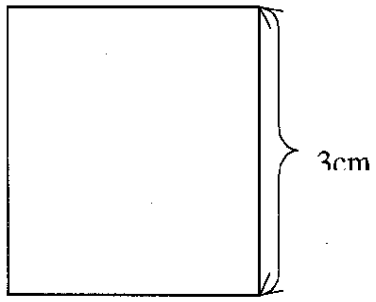


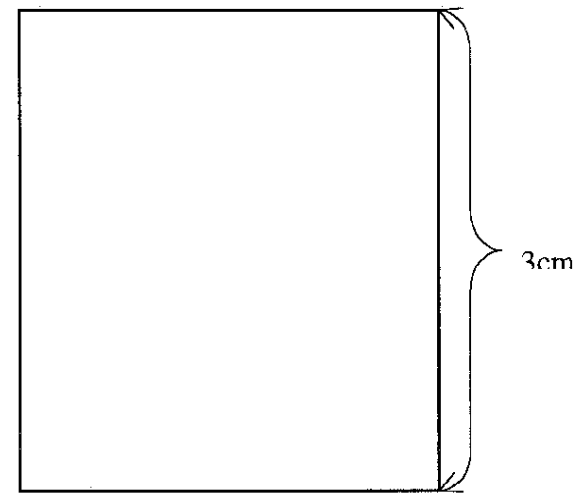
The perimeter of the square is:

3cm + 3cm + 3cm + 3cm =12cm

3cm × 4=12cm

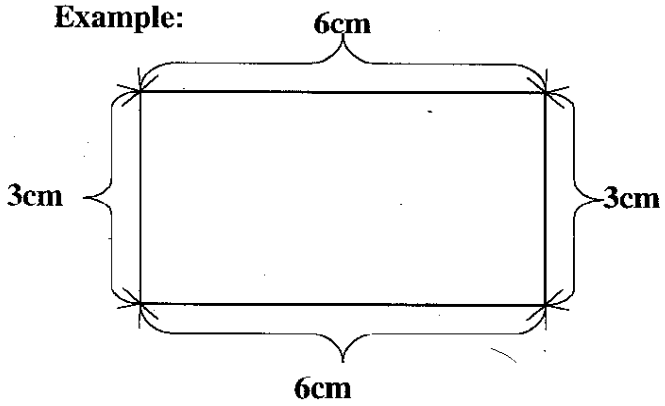
56. Find the perimeter of the following square:





The Perimeter of a Rectangle

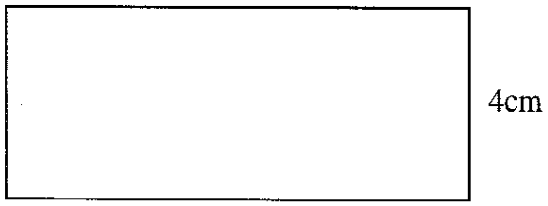
Example:

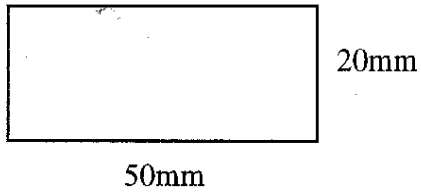


The perimeter of rectangle is:
3cm + 6cm + 3cm + 6cm = 18cm

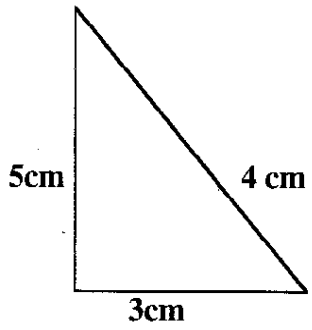
or (3cm+6cm) × 2 = 9 × 2 = 18cm

57. Find the perimeter of these rectangles:





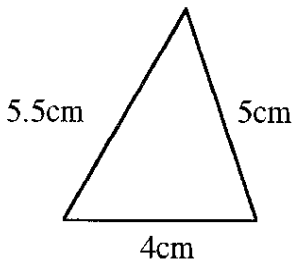
The Perimeter a Triangle



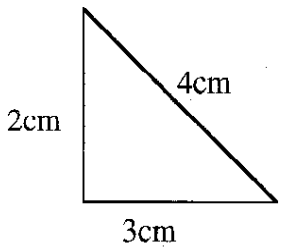
The perimeter of the Triangle is :

5cm + 4cm + 3cm = 12cm

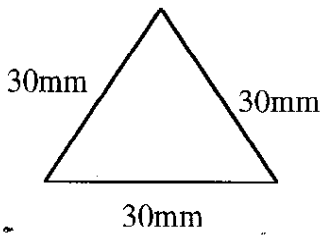
58. Find the perimeters of these triangles:



_____



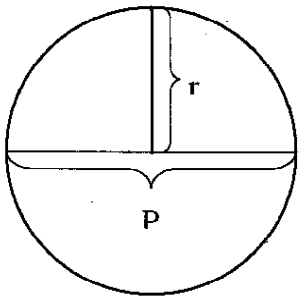
_____



_____

The Perimeter of a Circles

The perimeter of a circle is the distance around the circle.

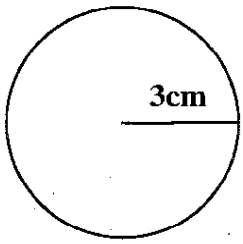


R = radius of the circle is the distance from the center to the circumference of the circle.

D = diameter of the circle is the distance across the circle through the center.

π is constant number = $\frac{22}{7}$ = $3\frac{1}{7}$.
π is used in calculating the perimeter and area of a circle.

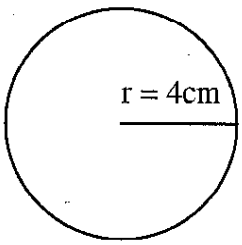
Example:

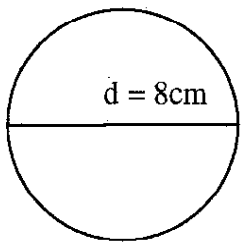


The perimeter of the circle is:
D × π or
2 × r × π

$$2 \times 3 = 6 \times \frac{22}{7} = \frac{132}{7} = 18\frac{6}{7}$$

59. Find the perimeters of these circles:



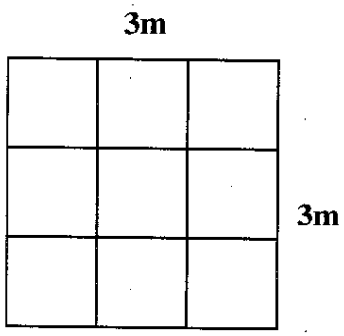


The Areas of Squares, Rectangles, Triangles and Circles

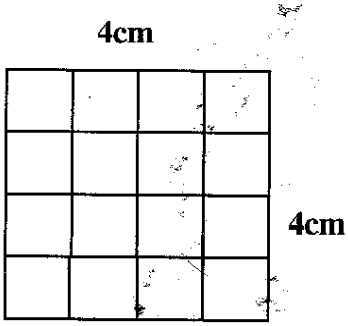
The Area of a Square

The area of a square is the number of squares inside the square.
To find the area of a square, we multiply side by side.
The area of figure is expressd in square units.

Example:

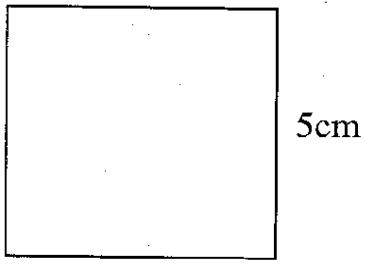


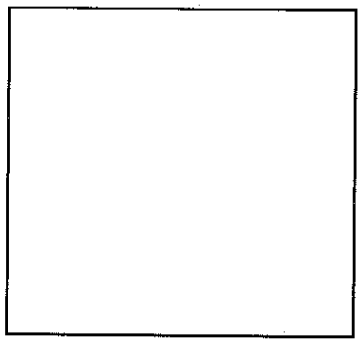
$9m^2$



$16cm^2$

60. Find the areas of the following squares:



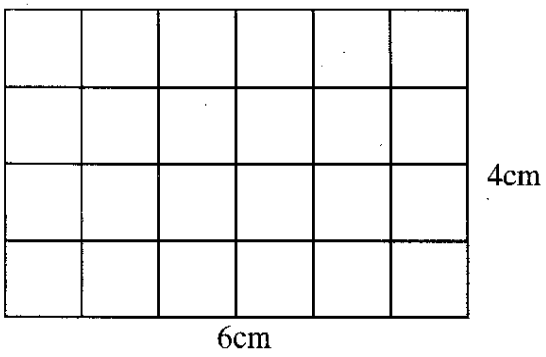


61. Word Problems:
Ahmad's garden is square in shape.
Onc side of his garden is 10 meters.
What is the area of the garden in square meters?

Hameeda's handkerchidf is square in shape.
The perimeter of her handkerchief is 80cm.
What is its area of the handkerchief in square cm?

The Area of a Rectengle

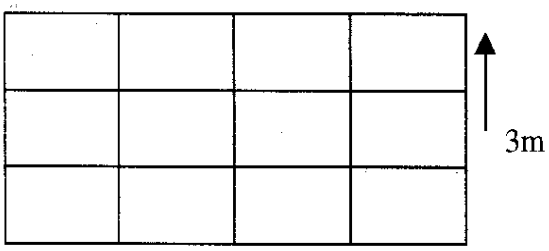
To finde the area of a rectangle we multiply the width by the length
The area of figure is expressd in square units.

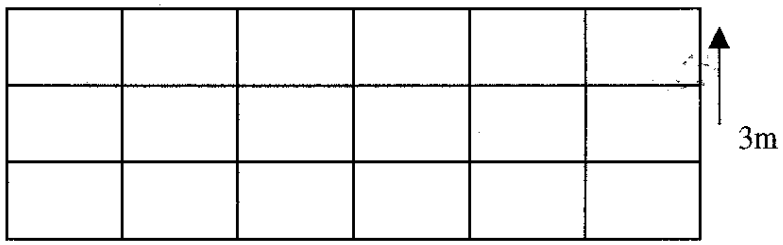


Area = length × width

Area = 6cm × 4cm = 24cm2

62. Find the areas of these rectangles:





63. Word Problems:

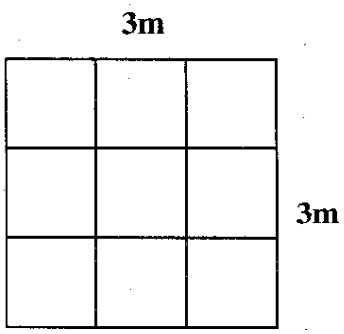
Karim wants to buy a carpet for his room.
The width of the room is $3\frac{1}{3}$ m , and the length is $4\frac{1}{3}$ m.
What is the area of the carpet needed for his room in square meters?

The Areas of Squares, Rectangles, Triangles and Circles

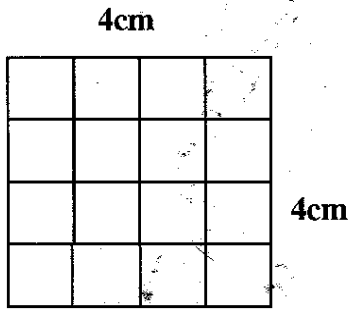
The Area of a Square

The area of a square is the number of squares inside the square.
To find the area of a square, we multiply side by side.
The area of figure is expressd in square units.

Example:

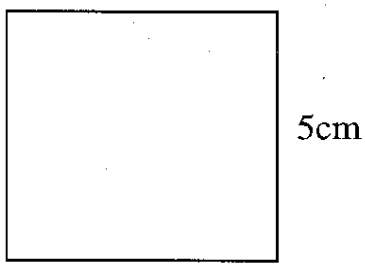


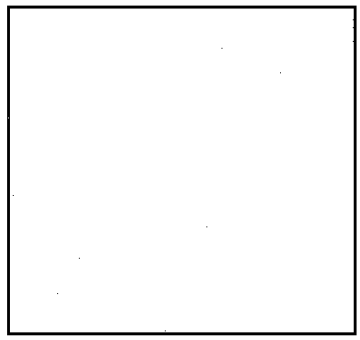
$9m^2$



$16cm^2$

60. Find the areas of the following squares:



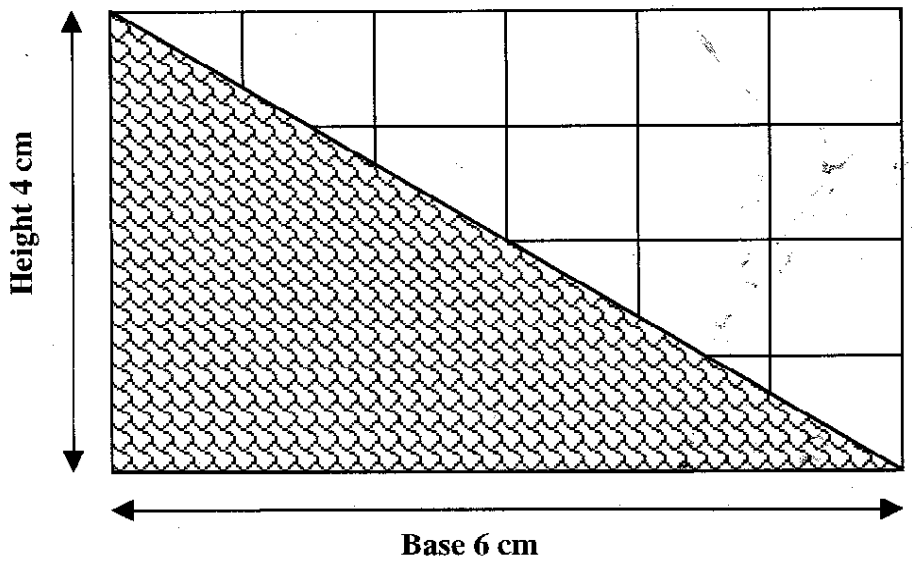


61. Word Problems:
Ahmad's garden is square in shape.
One side of his garden is 10 meters.
What is the area of the garden in square meters?

Hameeda's handkerchidf is square in shape.
The perimeter of her handkerchief is 80cm.
What is its area of the handkerchief in square cm?

The Area of a Triangle

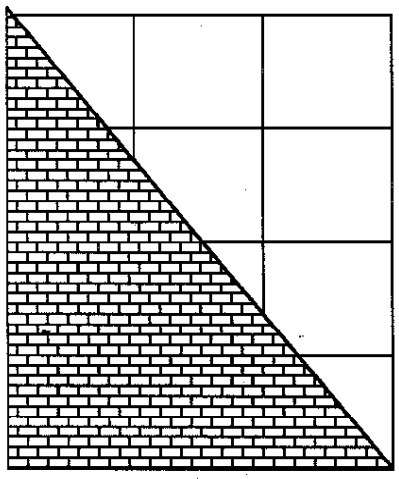
To find the area of a triangle, first find the area of a rectangle with the same base and height and then divide by two.

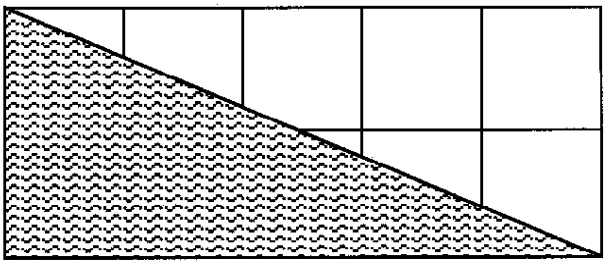


The Area of triangle = $\frac{\text{base} \times \text{height}}{2}$

The Area of the triangle = $\frac{6\text{cm} \times 4\text{cm}}{2} = \frac{24}{2} = 12\text{cm}^2$

64. Count the width and the length of the rectangles and find the area of the triangles.



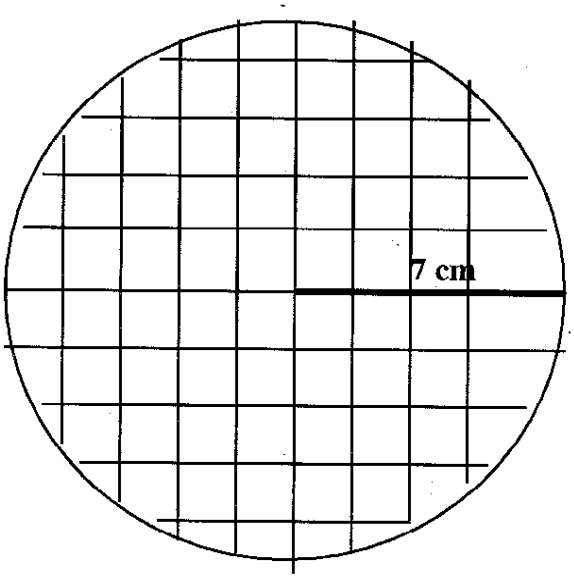


The Area of a Circle

The area of a circle is the number of squares inside the circle.

To find the area of the circle we multiply radius × radius × π

Example:



The area of the circle = radius × radius × π

The area of the above circle is $7 \times 7 \times \frac{22}{7} = 154\ cm^2$

65. Word Problems:

The students of Said Jamaluddin High School want to cultivate a circular flower bed in the school play ground.

The radius of a circle is 5 m.

Find the area of the flowerbed in square meters.

The swimming pool of intercontinental hotel is circular in shape.

The diameter is 9m.

Find the area of the pool in square cm.

Mathematics Scope and Sequence Chart

Math Concepts	I	II	III	IV	V	VI
Place Value	Pre number Concepts Tens; 1 – 99	Hundreds 100-999	Thousands 1000-100,000	Millions 7 Digit Numbers Add. and Sub.	Billions 8 - 10 digit numbers Add. and Sub.	Trillion 10 - 13 digit numbers Add and Sub.
Addition and Subtraction	Addition & Subtraction of 1 - 99 and zero without carrying and borrowing	Addition & Subtraction till 999 and zero with carrying/borrowing up to tens	Whole numbers w/wo borrow & carry Repeated addition	Review of multiplication Table		
Multiplication and Division			Multiplication and division by 1 to 9 and zero	Multiplication & division by 10s, 100s, 1000s without decimals Multiply/Divide numbers by 2, 3 and 4 digit numbers	Review multiplication and division	Review multiplication and division by 10s, 100s, 1000s with decimals
Fractions	Color 1/2 and 1/4 of figures	Matching fraction 1/2, 1/3, 2/3, 1/4, 2/4, 3/4 with figures	Identification of fraction (1/2, 1/3, 2/3, 1/4, 2/4, 3/4, 1/5, 2/5, 3/5, 4/5) with figures	Proper fractions Same denominator Compare Add Subtraction	Fractions Four operations: add, subtract, multiply and divide	Conversion of fractions to decimals and vice versa Compare
Decimals					Multiply/divide by 10s, 100s, 1000s with decimals Compare, add and subtract	Decimals Four operations: add, subtract, multiply and divide Ratio Percent
Measurement	Comparison of short and long, big and small and thick and thin	span, foot, steps compare capacity of containers Time, months, days and hours	m, cm, kg Hours and minutes	Multiples and parts of km, hm, dm, m m, dc, cm, mm Conversion without decimals	Multiples and parts km, hm, dm, m m, dc, cm, mm Conversion with decimals	Review perimeter in m, dc, cm, mm Review area of circle, triangle, rectangle and square in m^2 ,dc^2 cm^2 mm^2
Money/Calendar	Coins and bills up to 100 Afs.	50 Afs. 100Afs And 500 Afs.	Review of 50, 100, 500 1000, 5000, 10,000 Afs Solar Calendar	Lunar Calendar	AD Calendar	
Geometry	Identify like and unlike shapes of circle, square, triangle, rectangle	Identify name and count shapes of circle, square, triangle, rectangle	Sides of triangle, square and rectangle Introd. to perimeter	Perimeters of triangles, circles, squares, rectangles Areas of squares, rectangles and Triangles	Areas of triangles, circles, squares, rectangles m^2 & cm^2	Volume of cubes, rectangular cubes and cylinders in m^3, cm^3

Class Six Math

Place Value up to 10-13 digit Numbers

The student will be able to:

1. Write the value of the circled numerals:

1,50(0),240 _____

6,403,210,0(0)9 _____

6(0),002,311,948 _____

8,100,5(0)0,300 _____

2. Compare the following numbers using <, >, =

200,470,192,002 ☐ 200,409,192,002

3. Read and write the following numbers:

304,721,367,002 _____

6,092,001,030,101 _____

4. Add and write the number in standard form:

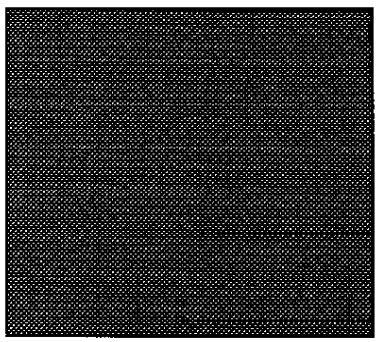
201, 000, 000 + 729,000+1 = _____

5. Write in expanded form:

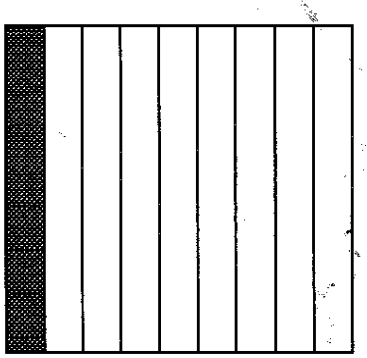
14,320,700,965,001 = _____

Decimal Fractions

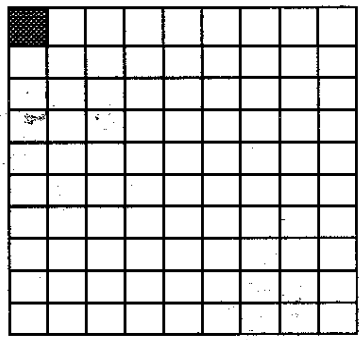
Study the following figures and observe how one whole number and decimal fractions are represented.
In dividing a number by 10, 100, 1000, the decimal point is placed to the left of the number by counting one place for 10, two places for 100 and three places for 1000.



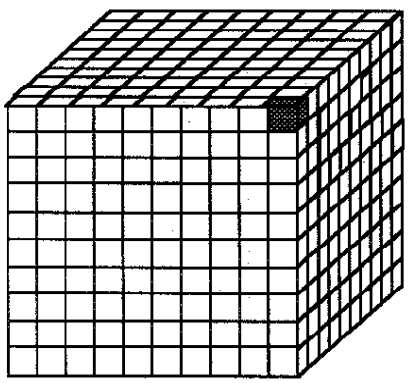
1.000



$\frac{1}{10} = 0.1$



$\frac{1}{100} = 0.01$



$\frac{1}{100} = 0.001$

Example:

2÷10=0.2
2÷100=0.02
375÷100=3.75
24÷1000=0.024
1290÷1000=1.290
25÷10=2.5
25 ÷100=0.25
1÷1000=0.001
375÷1000=0.375

6. Change these numbers to decimal fractions:

$6 \div 10 =$ _____
$11 \div 10 =$ _____
$4 \div 100 =$ _____
$24 \div 100 =$ _____
$22 \div 1000 =$ _____
$492 \div 1000 =$ _____

The decimal point separates the whole numbers: ones, tens, hundreds; from the decimal fractions: tenths, hundredths, thousands.

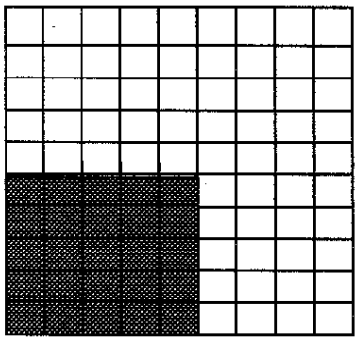
Hundreds	Tens	Ones	Decimal Point	Tenths	Hundreds	Thousands
		1	•	0		
		0	•	1		
		0	•	0	1	
		0	•	0	0	1

7. Write the numbers below in the chart above:
   12.01, 1.002, 3.1

Changing fractions to Decimal fractions

To change fractions to decimal fractions, we divide the numerator by the denominator.

Example:



$$\frac{1}{4} = \frac{25}{100} = 0.25$$

8. Change the following fractions to decimal fractions

6/15, _____

1/2, _____

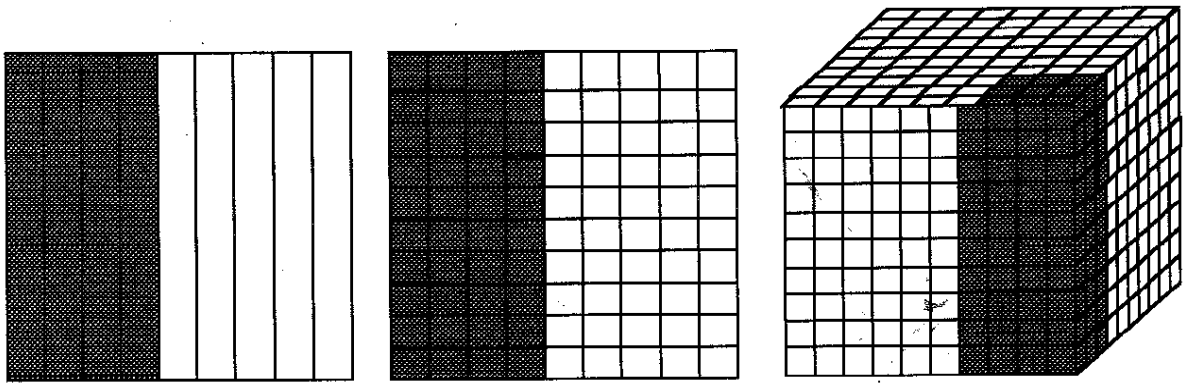
3/4, _____

13/100, _____

16/25 _____

Comparison of Decimal fractions

Study these decimal fractions and observe that they are equal.



0.4 **0.40** **0.400**

0.4 = 0.40, 0.4000

Addition of Decimal Fractions

In adding the decimal fractions, the decimal points are placed under each other.

Example:

Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
1	2	3	•	0	1	7
+	1	0	•	5	8	2
1	3	3	•	5	9	9

9. Add:

1.230	792.075	231.600
+21.325	+16 .925	+101.030
22.555		211.001
		543.631

10. Word Problem

Saleh went to the market.
One of his sisters asked him to bring 4.75 m of red cotton cloth.
His other sister, to bring 5.25 yellow cotton cloth.
His brother asked him to bring 3.15 m of green cotton cloth.
How many meters did Saleh buy?

Subtraction of Decimal Fractions

In subtraction decimal fractions, the decimal points placed under each other.

Example:

Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
0	10	9	•	9	11	
~~1~~	~~1~~	~~10~~		~~10~~	~~1~~	7
-	7	1	•	5	8	2
0	3	8	•	4	3	5

11. Subtract:

4.80	3.400	100.005
-2.11	-1.056	- 17.25
2.69	2.344	

12. Word Problem:

Lal Gul had 27.98 Kg of tea in his shop.

He sold 12.45 Kg.

How many kilograms of tea are left in the shop?

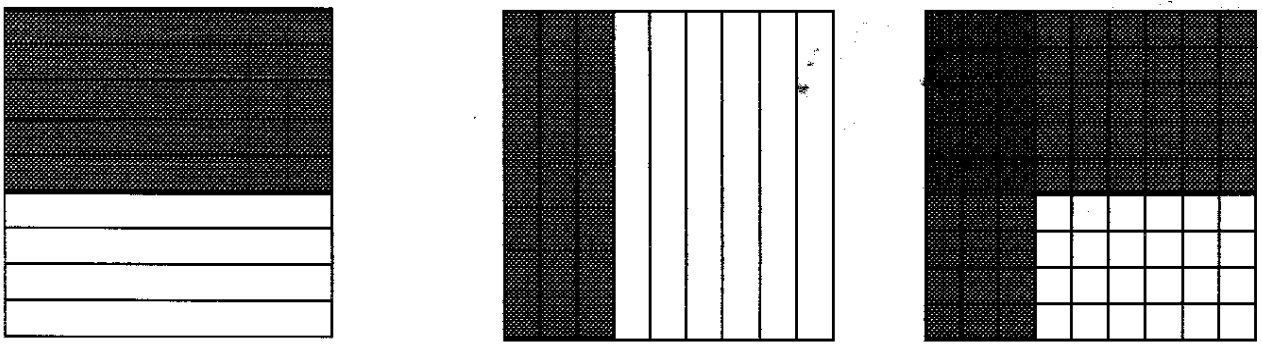
_____

Multiplication Decimal Fractions

In multiplying two decimal numbers, count the digits to the right of the decimal point in the two numbers multiplied, e.g. 2.31 × 1.09 = there are *4* digits to the right of the decimal point. Place the decimal point in the answer after counting the same number of digits to the left *4 places*. e. g. the answer is 2.5179

2.39 × 1.09 = 2.5179

2.31
× 1.09
2079
0000
23100
2.5179



0.5 × 0.3 = 0.15

13. Multiply:

0.4 × 2 =

0.5 × 0.2 =

0.02 × 0.05 =

0.04 × 0.009 =

14. Word Problem:

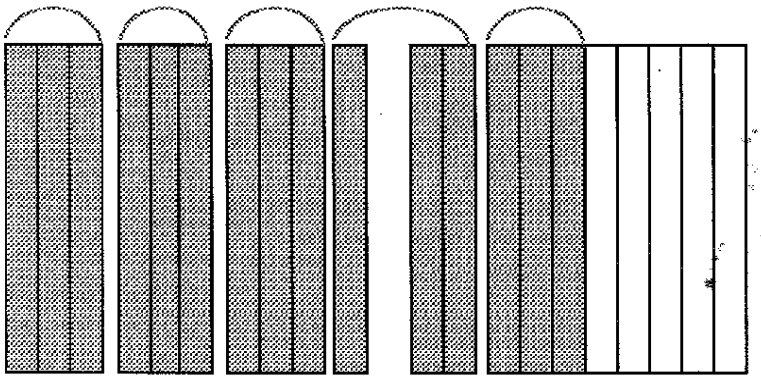
Nooria needs 5.835m of cloth to make a suit.
How many meters does she need to make 95 suits?

Division of decimal Fractions

In dividing decimal fractions by decimal fractions, we remove the decimal point from the number divided by and we count the places after the decimal point. The decimal point in the number divided is moved by the same number of places.

Example:

$$0.3\overline{)1.50} = 3\overline{)15} = 5$$



1 . 50 ÷ 0.3 = 5

Examples:

1.5 ÷ 0.03 = 50 **1.50 ÷ 0.03 = 50** **0.36 ÷ 0.06 = 6**

0.225 ÷ 0.05 = 4.5 **0.4000 ÷ 0.002 = 200**

15. Divide:

$0.5\overline{)0.042}$ $0.08\overline{)2.88}$ $0.003\overline{)3.69}$

25 ÷ 0.5 = 0.32 ÷ 0.04 = 23.40 + 4.005 =

6.296 – 1.123 = 0. 34 × 0.01 = 3.1 × 2.02 =

0.5 × 0.6 =

16. Word Problem

Hameed enters 5.346 pages every 24 hours .

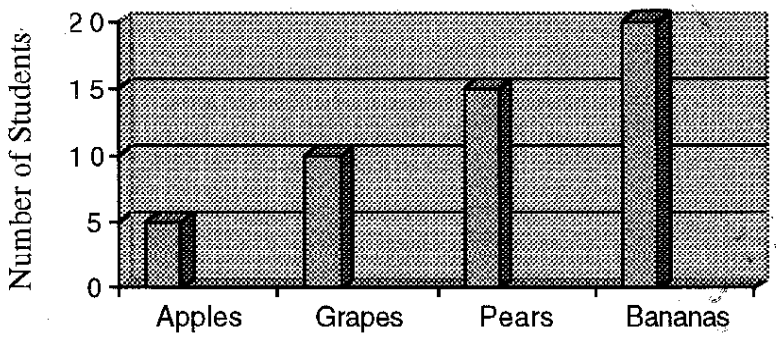
How many pages does he enter in three hours.

Ratio:

Ration is a comparison between two numbers using a fraction.

Example:

50 students were asked to name their favorite fruit out of four kinds. Compare the number of students preference for each kind of fruit.



Apples $\frac{5}{50} = \frac{1}{10}$ **or 1:10**

Grapes $\frac{10}{50} \quad \frac{1}{5}$ **or 1:5**

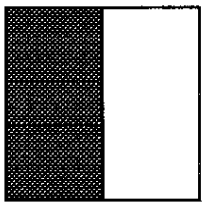
Pears $\frac{15}{50} \quad \frac{3}{10}$ **or 3:10**

Bananas $\frac{20}{50} \quad \frac{2}{5}$ **or 2:5**

Changing Ratios to Fractions

Rations can be written as fraction.

Example:



$$1:2 = \frac{1}{2}$$

$$14:11 = \frac{14}{11} \qquad \frac{15}{19} = 15:19$$

17. Write the ratio of the following numbers:

4 and 5 12 and 96 3.5 and 4.5

18. Word Problems

Nazir's ox ploughs 4.70m^2 of his field in one day.
Akram's ox ploughs 39.65 m^2 of his field in one day.
What is the ratio of the two ploughd fields?

_____

The cost of 7kg wheet and 7 kg ricc is 95,000.78 afs and 120000.59 afs respectively.
Write the ratio of he cost of wheet to the rice.

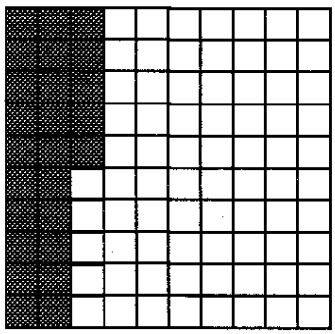
_____

Percentage

Change Decimal Fractions to Percentages:

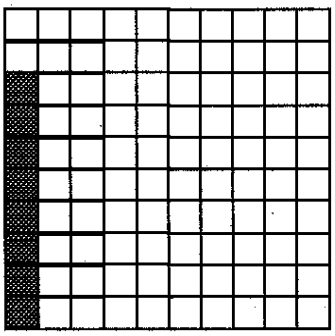
In changing fractions to percentages, we divide the numerator by denominator and multiply the answer by 100.

Example:



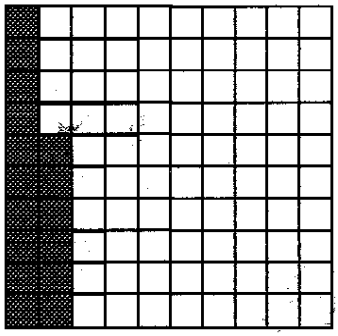
25%

$$\frac{1}{4} = 0.25 \times 100 = 25\%$$



8%

$$\frac{8}{100} = 0.08 \times 100 = 8\%$$



16%

$$\frac{16}{100} = 0.16 \times 100 = 16\%$$

19. Change these fractions to percentages:

16/10 = _____ 2/100 = _____ 275/1000 = _____

Word Problems

Khair Gul bought some watermelon for 5000.987 Afs.
He sold them for 5501.517.
How much profit did he make?
Calculate the percentage of his profit.

_____

Ahmad's mother gets 100,000 Afs. per month.
Her salary increased 10,000 Afs.
Calculate the percentage of her salary increase?

_____

Rounding Off

Decimal fractions can be rounded off to the nearest whole number, tenth, hundredth, and thousands.

Example:

The number	Round off to the nearest whole number:	Round off to the nearest Tenth:	Round off to the nearest hundredth	Round off to the nearest thousandth
36.7300	37	36.7	36.73	36.730
15.2001	15	15.2	15.20	15.200
4.4675	5	4.5	4.47	4.478
73.8465	74	73.8	73.85	73.847

To round off to the nearest whole number e.g. 36.73 we look at the tenth digit right after decimal point; if it is five or more, we round it off and add one to the whole number. Thus 36.73 becomes 37. If it is less than five we keep the same number.

To round off to the nearest tenth e.g. 15.2001, we look at the digit in the hundredths place; If it is five or more, we round it off and add one to the tenth digit and if it is less than five we keep the same number. Thus the number becomes 15.2

To round off to the nearest hundredth e.g. 4.4675, we look at the digit in the thousandth place; If it is five or more, we round it off and add one to the hundredth digit. Thus the number becomes 4.47. If it is less than five we keep the same number.

To round off to the nearest thousandth e.g. 37.8465, we look at the digit in the ten thousandth place; If it is five or more, we round it off and add one to the thousandths digit. Thus the number becomes 37.857. If it is less than five we keep the same number.

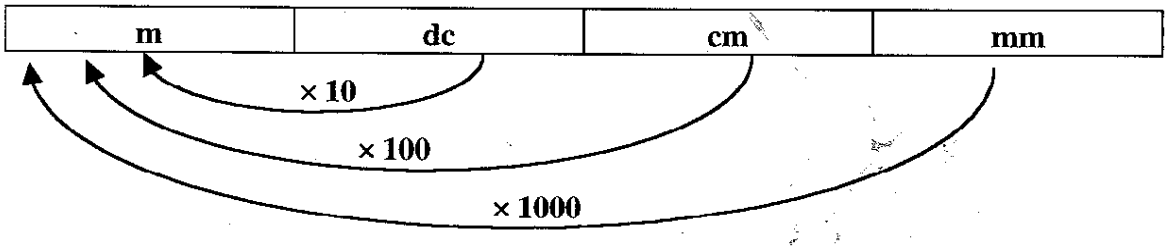
20. Round off and complete the following table:

The number	Round off to the nearest whole number:	Round off to the nearest Tenth:	Round off to the nearest hundredth	Round off to the nearest thousandth
3.70000				
48.2600				
0.6878				
0.3420				
1260800				
37.0030				
628.1105				
23.4792				
86.5555				
169.2468				
597.8352				

Measurement

Units of Measurement

To change large units of measurement to smaller units of measurement we multiply by 10, 100 and 1,000 as indicated in the diagram.



Example:

25 m = 25× 10 = 250 dc

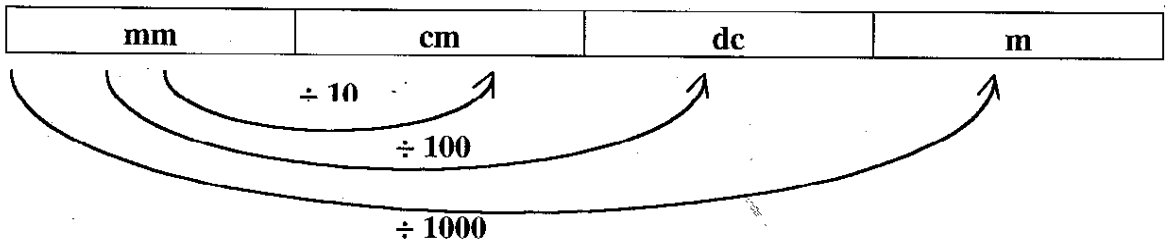
25 m = 25 × 100 = 2500 cm

25 m = 25 × 1000 = 25000 mm

21. Change these units of measurement as indicated below:

3.6 m = ☐ dc	9.66 m = ☐ mm	4.9dc = ☐ cm
25 dc = ☐ mm	1.64 cm = ☐ mm	743m= ☐ mm
56 m = ☐ cm	8.04 dm = ☐ cm	200 cm ☐ mm

To change small units of measurement to large units of measurement, we divide by 10, 100, and 1000 as indicated in the diagram.



Example:

2 mm = 2 ÷ 100 = 0.02 dc
5 cm = 5 ÷ 100 = 0.5 m
120 mm = 120 ÷ 1000 = 0.12 m

22. Change these units of measurement as indicated below:

7.9 dc = ☐ m	4.9 cm = ☐ dc	66.95 mm= ☐ m
147 dc = ☐ mm	6.14 cm = ☐ mm	743 m = ☐ mm
56 cm = ☐ m	8.04 dm = ☐ m	1200 mm = ☐ m

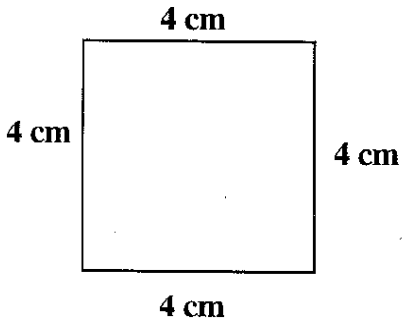
Perimeter

The distance around the figure is called the perimeter of the figure.

Perimeter of a Square

To find out the perimeter of a square, we add the sides.

Example:



The perimeter of this square is:
S+S+S+S
4+ 4+4+4 = 16 cm
4 × 4 = 16 cm

23. Word Problems:
We want to fence our small square garden.
The side of the garden is 14.5 m.
How many meters of barbed wire will be required to fence the garden?

_____

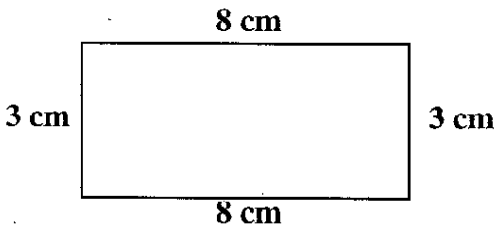
Hameed has a square shaped table.
The side of the table is 2.5 m.
How many meters are needed to strip the sides of the table?

_____

Perimeter of a rectangle

To find out the perimeter of a rectangle, we add the sides.

Example:



The perimeter of this rectangle is:

S+S+S+S

8+ 3+8+3 = 22 cm

2 × (8+3) = 22 cm

24. Word Problem:

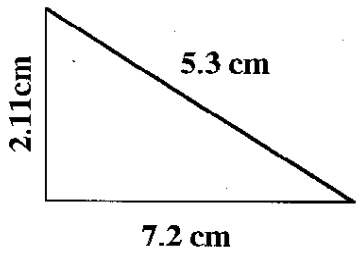
A rectangular shaped garden is 32 meter long and 20 meters wide. How many meters of barbed wire is needed to fence the garden?

_____

The Perimeter of a Triangle

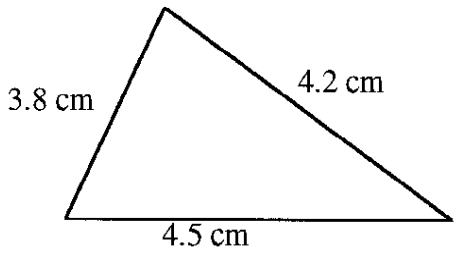
To find out the perimeter of a triangle, we add the sides.

Example:

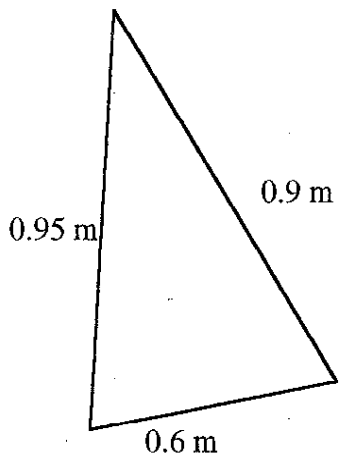


The perimeter of a triangle is:
S+S+S
7.1 + 2.11 + 5.3 = 14.16 cm

25. Find the perimeter of the following triangle:



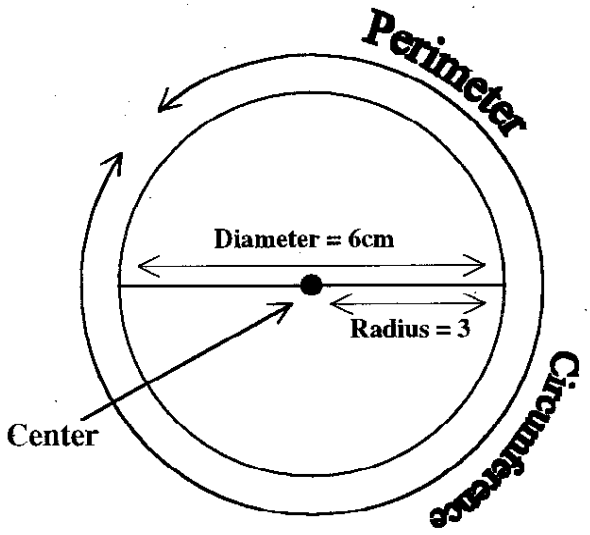
_____



_____

The perimeter of a circle

The perimeter of a circle is the distance around the circle.



Diameter = radius × 2

= 3 × 2= 6 cm

$$\pi = \frac{\text{Circumference of a circle}}{\text{Diameter of a circle}}$$

$$\pi = \frac{22}{7} = 3.14$$

π is a constant value used in finding the perimeter and the area of a circle.

Perimeter of the circle = diameter $\times \pi$

26. Word Problem

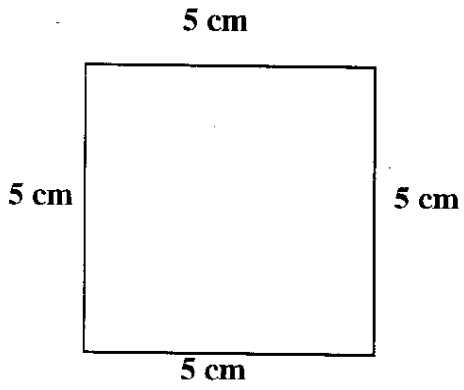
Nasim wants to make a fountain around a circular pool,
The distance between the circumference and the center is 3.5 meters.
Write the length in meters of the pipe encircling the pool.
Round it off to the nearest tenth of a meter.

Area

Area of a Square

The area of a square is the number of squares inside the square.

Example:



Area of the square:

$S \times S = S^2$

$5cm \times 5cm = 25\ cm^2$

27. Word Problems:

A square-shaped room is 7.5m long.

What would be the size of a carpet to cover the room leaving 1 meter between the carpet and the wall?

_____

A square-shaped yard is 10.25m long.

What is the area of the yard in m^2

_____

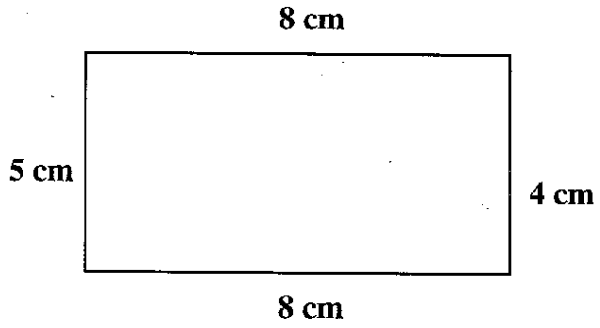
What id the area of a square-shaped carpet, if each side is 2.5m ?

_____

Area of a Rectangle

The area of a rectangle is the number of squares inside the rectangle.

Example:



Area of the rectangle:
l length × width = area
8cm × 4cm = 32 cm²

28. Word Problems:

A garden is 9.50m long and 6.25m wide.
What is the area of the garden?

_____

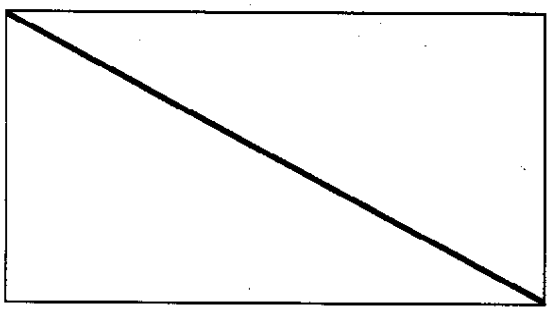
Find the area of a playground that is 19.25m long and 17.60m wide.

_____

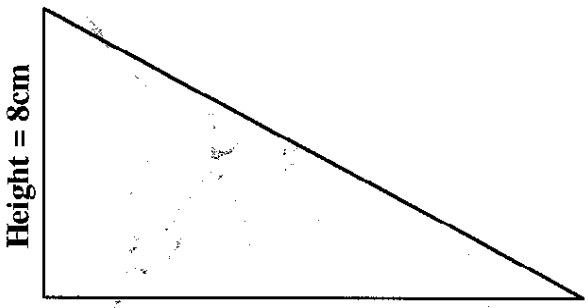
Area of a Triangle

The area of a triangle is the number of squares inside the triangle.

Example:



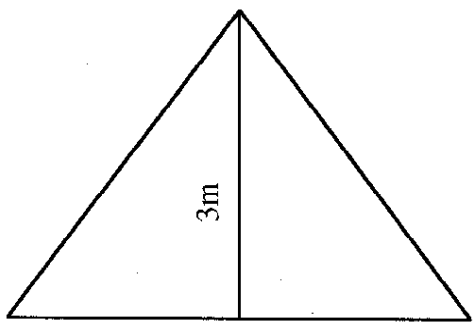
Remember that the area of a triangle is half of the area of a rectangle.

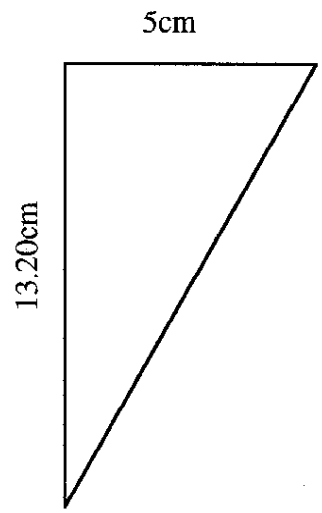


$$\text{The area of a triangle} = \frac{\text{Base} \times \text{Height}}{2}$$

$$\frac{15\text{cm} \times 8\text{cm}}{2} = 60\text{cm}^2$$

29. Find the areas of the following triangles:

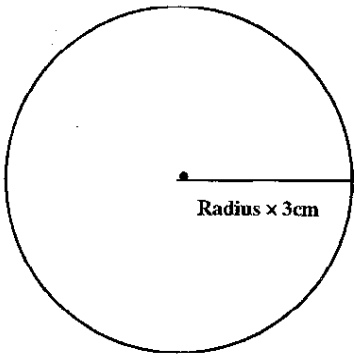




The area of a Circle

The area of circle is the number of squares inside the circle.

Example:



Area of the circle:

$\pi \times r^2$

$3{,}14 \times 3 \times 3 = 28.26\ cm^2$

30. Word Problems:

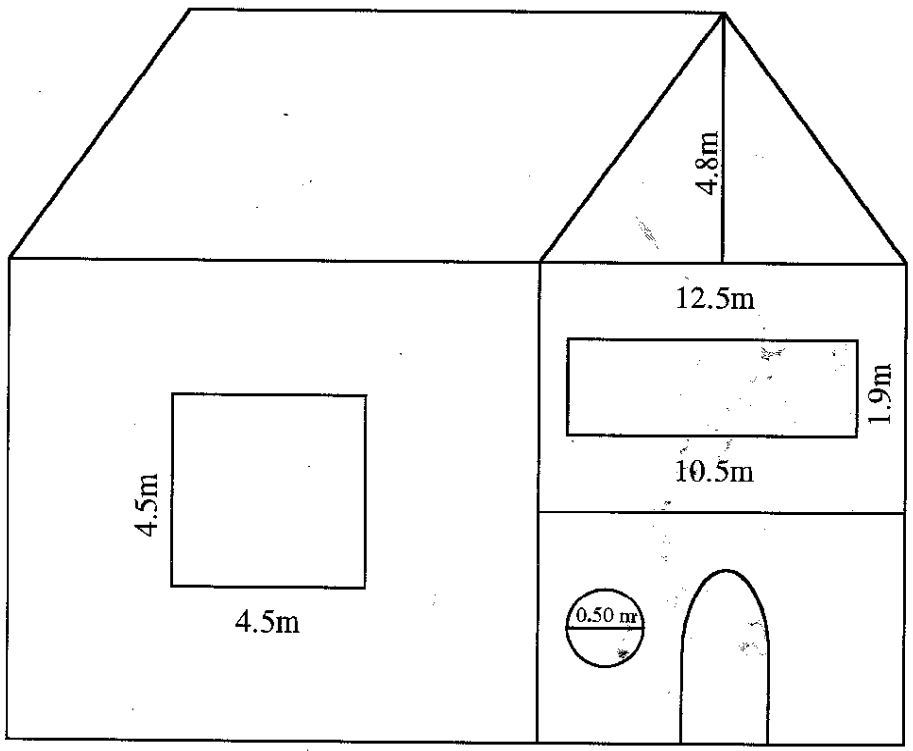
What is the area of a circle whose diameter is 16.50 m?

_____

Nooria wants to from a circular-shaped flowerbed.
The radius of each flowerbed is 5cm.
What is the area of each flowerbed?
If the area of the garden is $10205cm^2$,
How many flowers will she need?

_____

31. Answer the following questions:



What is the area of the front part of the roof, whose base is 12.5m and height is 4.8m?

_____

What is the area of the side window, whose length is 4.5m?

_____

What is the area of the front window, whose length is 10.5m and width is 1.9m?

_____

What is the area of the nametag, near the door?

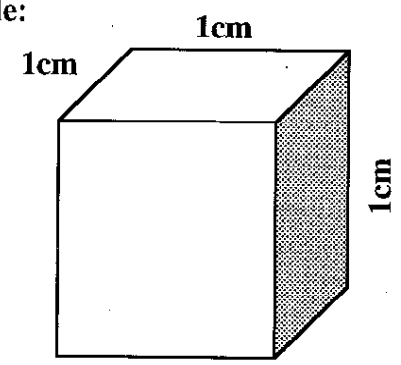
_____

Volume

The Volume of a Cube

The volume of a cube is the amount of space it contains in cubic units.

Example:



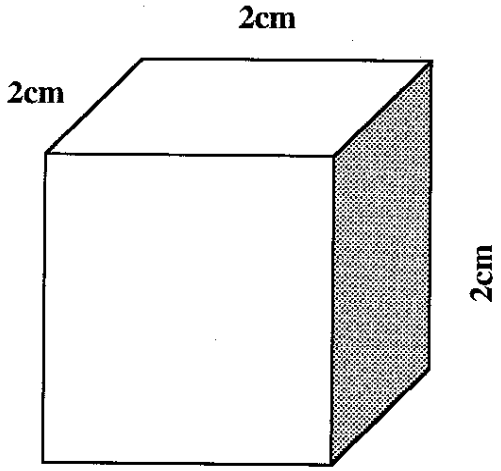
The volume of the cube:

Length × width × height

$1cm \times 1cm \times 1cm = 1cm^3$

32. Answer the following questions:

Find the volume of the follwing cube:



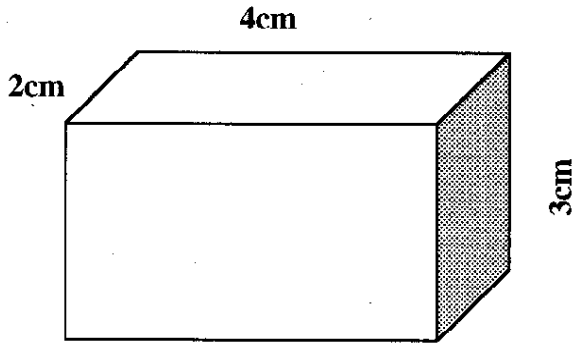
Draw a cube, whose length, wodth and height are 3.6cm.
Find the volume of thc cube.

Find the volume of a tea container, whose length, width and height are 40cm each.

The Volume of a Rectangular Cube

The volume of a rectangular cube is the amount of space it contains in cubic units.

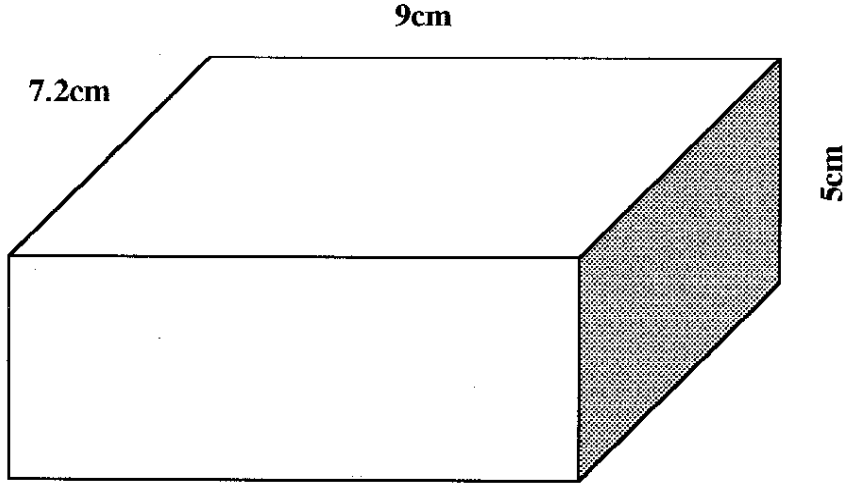
Example:



The volume of the rectangular cube:
Length × width × height
$4cm \times 2cm \times 3cm = 24cm^3$

33. Answer the following questions:

Find the volume of the follwing rectangular cube:



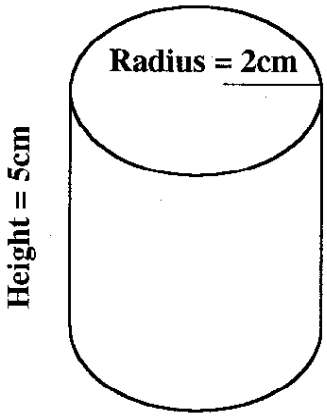
Find the volume of a sugar container, whose length is 6.9 cm, width 5.1 cm, and height 4.3 cm.

Find the volume of a cement block, whose length is 12.4 m, width 6.8 m and height 8.6m.

Volume of Cylinder

The volume of a cylinder is the amount of space it contains in cubic units.

Example:

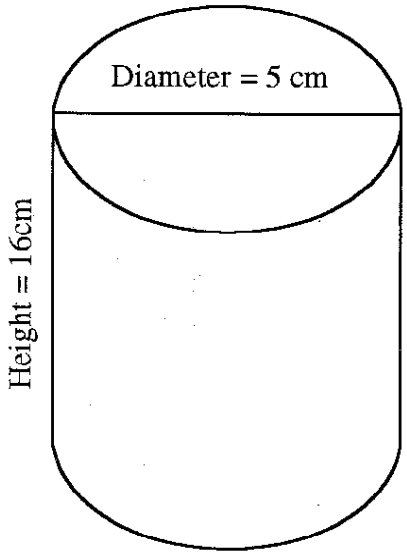


A cylinder has two circular bases that are congruent and parallel.

The volume of the cylinder:
The area of the base × height
$2 \times 2 \times 3.14 \times 5 = 62.50 cm^3$

34. Answer the following questions:

Find the volume of the follwing cylinder:

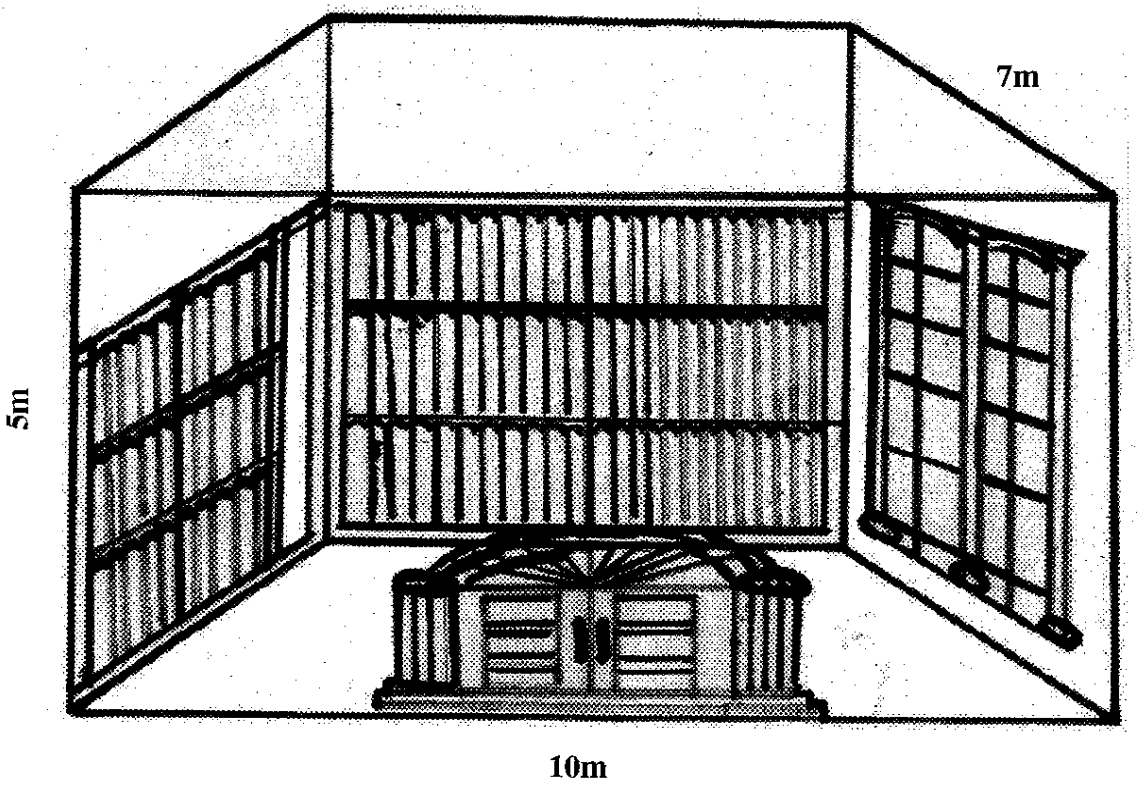


35. Word Problem:

Find the volume a cylinder coffee container whose diameter of 3cm and height is 7cm.

A cylinder water tank whose radius is 5m and height is 10m. What is the volume of the tank in cm^3?

36. Answer the following questions:



A liberary is 10m long, 7m wide and 5m high.
In winter the liberary is heated.
How many cubic meters are there to be heated?

_____

If we double the dimentions of the liberary: the length, the width and the height.
How many cubic meter of air will it hold?

_____