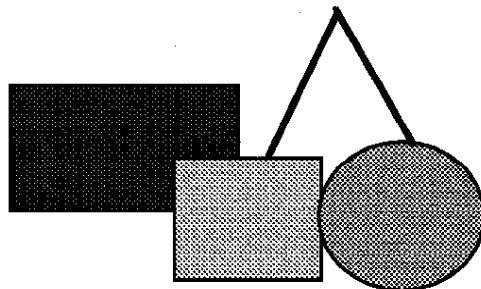


**Basic Competencies of  
Learning in**

# **Mathematics**



**Grade Three**

# ***In the name of God, the gracious, the merciful***

## **Introduction:**

This booklet is one of a series of teacher resource books on Dari, Pashto and mathematics. These were developed in 1999 by a group of experienced Afghan educators to help teachers understand the universal basic competencies that primary education programs need to teach. The materials were developed based on various resource materials. In particular, they draw on existing Afghan primary textbooks.

The mathematics booklets are organized as follows:

- There are six booklets, one for each grade (1-6).
- Each booklet contains a full mathematics concept and skills framework for the full primary level. This framework can help teachers in different ways:
  - It helps teachers to understand how different math concepts are broken down into skills for each class level;
  - It helps teachers to understand how the different math concepts and skills need to be built up sequentially through the primary cycle;
  - It shows at which grade level new concepts and skills should be introduced.
- Each grade booklet then provides examples of all the math skills that need to be covered in the specific grade. The examples can help teachers as follows:
  - It ensures that all teachers understand the skills in the same way;
  - Teachers can use the examples to test whether children have learnt the skills;
  - Teachers can use the examples to develop extra practice material for children.

Not only teachers can use the materials. Teacher trainers can use the materials as well, for example to introduce the basic competencies, to teach subject content, and to help teachers develop low-cost teaching aids linked to the competencies. Supervisors can use the examples to test whether children are learning the basic competencies in mathematics. It is the hope of the developers that all Afghan educators will find the materials useful in their work with children.

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**Prepared by the representatives of the following organizations:**

OI	Ockenden International
IRC	International Rescue Committee
AG-BASED	Afghan German Basic Education
SCA	Swedish Committee for Afghanistan
SAB	Solidarite Afghanistan Belgium
GTZ-BEFARE	GTZ-Basic Education for Afghan Refugees
AIL	Afghan Institute of Learning
CARE	Cooperative Assistance Relief Everywhere
PSD	Partners for Social Development
SCF-USA	Save the Children Federation -USA
CIC	Children in Crisis
NAC	Norwegian Afghanistan Committee
ECAR	Education Committee for Afghan Refugees
AMNA	Creation of the Pilot Schools in Afghanistan
HCI	Human Concern International
	Afghan Teachers and Schools Union in Quetta

Afghan Education  
Basic Competencies of Learning in Mathematics May 1999

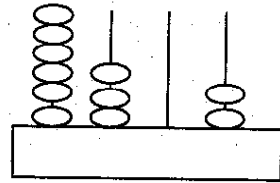
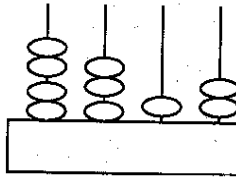
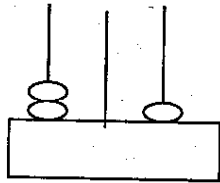
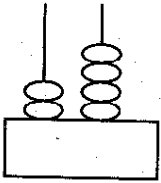
Math Concepts	I	II	III	IV	V	VI
Place Value	Pre number Concepts Tens; 1 - 99	Hundreds 100-999	Thousands 1000- 100000	Millions 7 Digits Add. and Sub.	Billions 8 - 10 digits Add. and Sub.	Trillion 10 - 13 digits Add and Sub.
Addition and Subtraction	Addition & Subtraction of 1 - 99 and zero without carrying and borrowing	Addition & Subtraction till 999 and zero with carrying/borrowing up to tens	Whole numbers w/w/o 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 w/o decimals Multiply/Divoid by 2, 3 and four digits	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	Four operations on Fractions	Conversion of fractions to decimals and vice versa Compare
Decimals				Multiply/divide by 10s, 100s, 1000s with decimals Compare, add and subtract		Four operations on Decimals Application 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 km, hm, dm, m m, dm, cm, mm Conversion without decimals	Multiples and parts km, hm, dm, m m, dm, cm, mm Conversion with decimals	Review m, dm, cm, mm with perimeter $m^2$ , $dm^2$ , $cm^2$ , $mm^2$ with areas of circle, triangle, rectangle and square
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.	Lunar Calendar	AD Calendar	

# Class Three Math

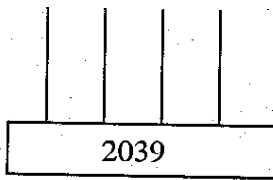
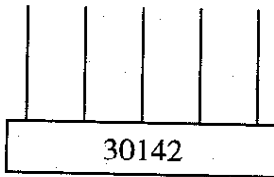
## Place Value up to Thousands

The children will be able to:

1. Read and write the numbers indicated in the abacuxs



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

$$\begin{array}{r} 123 \\ +245 \\ \hline 368 \end{array}$$

$$\begin{array}{r} 4821 \\ +3118 \\ \hline \end{array}$$

$$\begin{array}{r} 87621 \\ +12378 \\ \hline \end{array}$$

### Subtraction without Borrowing

8. Subtract without borrowing:

$$\begin{array}{r} 842 \\ -521 \\ \hline 321 \end{array}$$

$$\begin{array}{r} 6749 \\ -4436 \\ \hline \end{array}$$

$$\begin{array}{r} 97845 \\ -85432 \\ \hline \end{array}$$

### Addition with Carrying

9. Add and carry:

$$\begin{array}{r} \phantom{0} \overset{1}{I} \\ 8 \mid 4 \mid 2 \\ +1 \mid 3 \mid 9 \\ \hline 9 \mid 8 \mid 1 \end{array}$$

$$\begin{array}{r} \phantom{0} \overset{1}{I} \\ 4 \mid 5 \mid 7 \mid 2 \\ +3 \mid 3 \mid 8 \mid 1 \\ \hline 7 \mid 9 \mid 5 \mid 3 \end{array}$$

$$\begin{array}{r} \phantom{0} \overset{1}{I} \quad \overset{1}{I} \\ 8 \mid 2 \mid 3 \quad 2 \\ +1 \mid 1 \mid 9 \quad 9 \\ \hline 9 \mid 4 \mid 3 \quad 1 \end{array}$$

$$\begin{array}{r} \phantom{0} \overset{1}{I} \quad \overset{1}{I} \quad \overset{1}{I} \quad \overset{1}{I} \\ 8 \mid 8 \mid 7 \mid 6 \quad 5 \\ + \mid 4 \mid 4 \mid 5 \quad 6 \\ \hline 9 \mid 3 \mid 2 \mid 2 \quad 1 \end{array}$$

### Subtraction with Borrowing

10. Subtract and borrow:

	3		
2	<del>4</del>	12	
-1	2	8	
1	1	4	

	3		
8	<del>4</del>	12	5
+6	2	4	3
2	1	8	2

	7		
2	<del>8</del>	10	
-1	2	5	
1	5	5	

	7		
5	<del>8</del>	10	5
+4	2	3	2
1	5	7	3

	4		
2	<del>5</del>	10	10
-1	4	0	5
1	0	9	5

	6	9	9	
2	<del>7</del>	10	10	11
+1	6	5	4	9
1	0	4	5	2

H	T	U
	3	
2	<del>4</del>	12
-1	2	8
1	1	4

Th	H	T	U
	3		
8	<del>4</del>	12	5
-6	2	4	3
2	1	8	2

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

### Subtraction with Zeroes

11. Subtract with zeroes

H	T	U
	7	
2	<del>8</del>	10
1	2	5
1	5	5

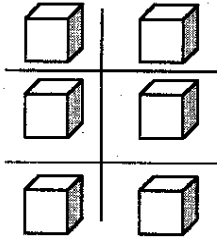
Th	H	T	U
	7		
5	<del>8</del>	10	5
-4	2	3	2
1	5	7	3

Th	H	T	U
	4	9	
2	<del>5</del>	<del>10</del>	10
1	4	0	5
1	0	9	5

10 Th	Th	H	T	U
	6	9	9	
2	<del>7</del>	<del>10</del>	<del>10</del>	11
-1	6	5	4	9
1	0	4	5	2

## Multiplication

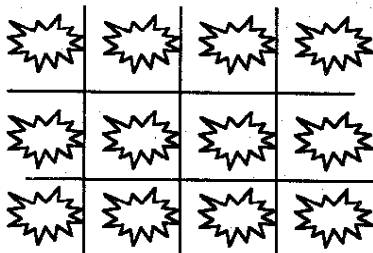
Recognized that multiplication is repetitive addition like the example:



$$2 + 2 + 2 = 6$$

$$2 \times 3 = 6$$

$$3 \times 2 = 6$$



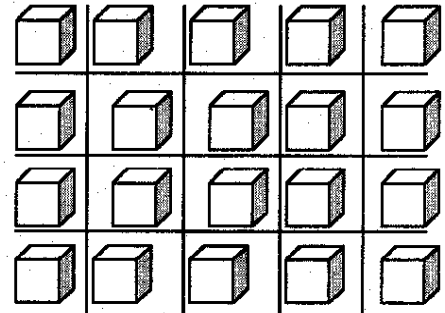
$$3 + 3 + 3 + 3 = 12$$

$$4 \times 3 = 12$$

$$3 \times 4 = 12$$

12. Fill in the blanks:

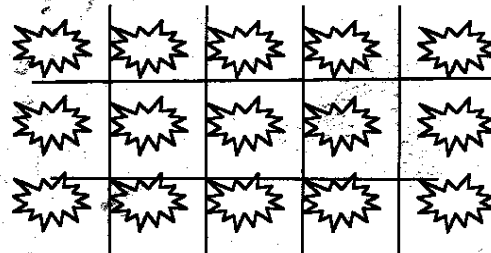
$1 \times 6 = 6$	$1 \times 7 = \underline{\quad}$	$1 \times 8 = 8$	$1 \times 9 = 9$
$2 \times 6 = 12$	$2 \times 7 = 14$	$2 \times 8 = \underline{\quad}$	$2 \times 9 = \underline{\quad}$
$3 \times 6 = \underline{\quad}$	$3 \times 7 = \underline{\quad}$	$3 \times 8 = \underline{\quad}$	$3 \times 9 = 27$
$4 \times 6 = \underline{\quad}$	$4 \times 7 = \underline{\quad}$	$4 \times 8 = 32$	$4 \times 9 = \underline{\quad}$
$5 \times 6 = \underline{\quad}$	$5 \times 7 = \underline{\quad}$	$5 \times 8 = \underline{\quad}$	$5 \times 9 = \underline{\quad}$
$6 \times 6 = \underline{\quad}$	$6 \times 7 = 42$	$6 \times 8 = \underline{\quad}$	$6 \times 9 = 54$
$7 \times 6 = \underline{\quad}$	$7 \times 7 = \underline{\quad}$	$7 \times 8 = \underline{\quad}$	$7 \times 9 = \underline{\quad}$
$8 \times 6 = \underline{\quad}$	$8 \times 7 = \underline{\quad}$	$8 \times 8 = \underline{\quad}$	$8 \times 9 = 72$
$9 \times 6 = \underline{\quad}$	$9 \times 7 = \underline{\quad}$	$9 \times 8 = 72$	$9 \times 9 = \underline{\quad}$
$10 \times 6 = \underline{\quad}$	$10 \times 7 = 70$	$10 \times 8 = \underline{\quad}$	$10 \times 9 = \underline{\quad}$



$$4 + 4 + 4 + 4 + 4 = 20$$

$$5 \times 4 = 20$$

$$4 \times 5 = 20$$



$$5 + 5 + 5 = 15$$

$$3 \times 5 = 15$$

$$5 \times 3 = 15$$



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:

$$\begin{array}{r} 12 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 132 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2121 \\ \times 4 \\ \hline \end{array}$$

15. Multiply by one-digit numbers with carrying:

$$\begin{array}{r} 2246 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 21182 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 11586 \\ \times 4 \\ \hline \end{array}$$

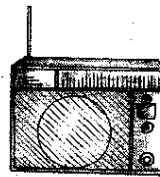
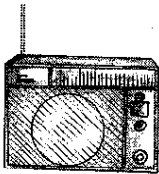
16. Multiply with zero:

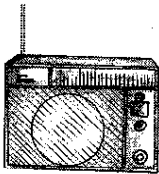
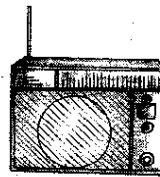
×	0	1	2	3	4	5	6	7	8	9	10
0	0			0							0

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

$$\begin{array}{r} 8210 \\ \times 5 \\ \hline \end{array}$$

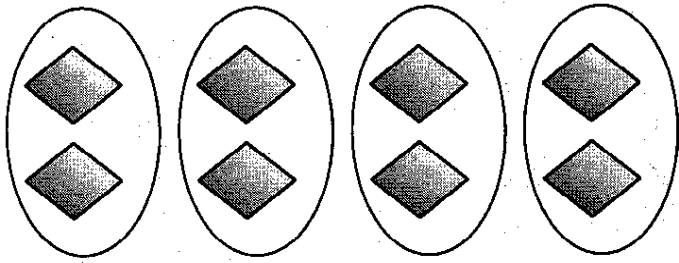
$$\begin{array}{r} 68020 \\ \times 6 \\ \hline \end{array}$$



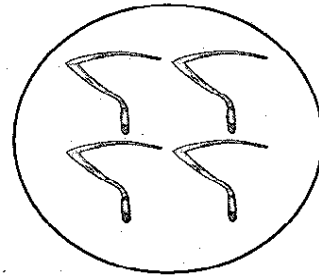
18. One  costs 3812 Afghanis. How much will 3  cost?

# Division

Recognize that division is repetitive subtraction

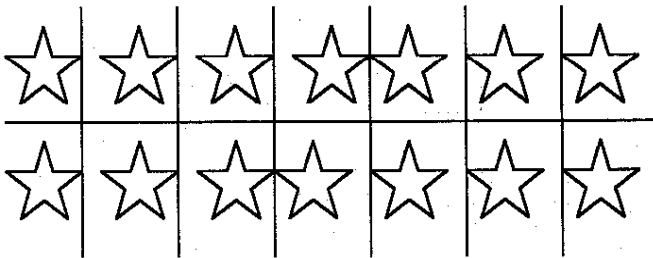


$8 - 2 = 6$      $6 - 2 = 4$      $4 - 2 = 2$      $2 - 2 = 0$

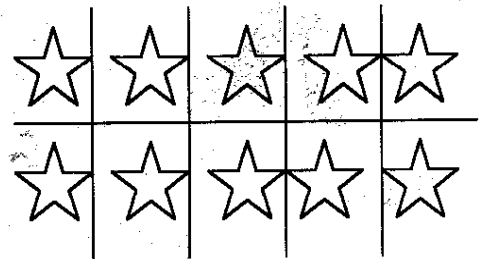


$4 \div 4 = 1$

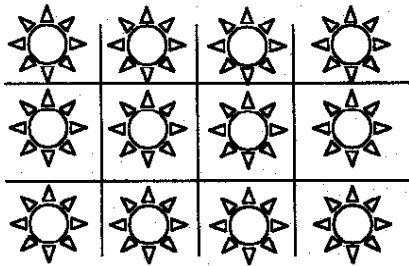
There are four 2's in 8.     $8 \div 2 = 4$



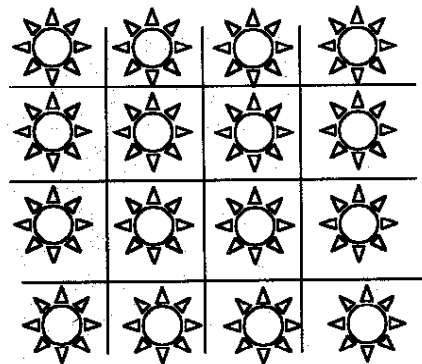
$14 \div 2 = 7$   
 $14 \div 7 = 2$



$10 \div 5 = 2$   
 $10 \div 2 = 5$



$12 \div 3 = 4$   
 $12 \div 4 = 3$   
 $3 \times 4 = 12$   
 $4 \times 3 = 12$



$20 \div 5 = 4$   
 $20 \div 4 = 5$   
 $4 \times 5 = 20$   
 $5 \times 4 = 20$

19. Fill in the blanks

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

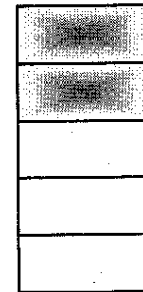
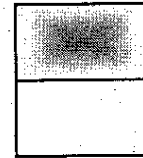
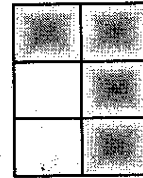
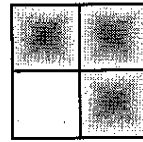
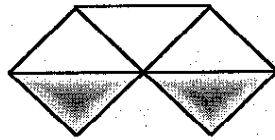
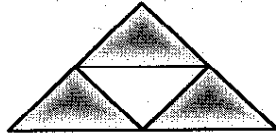
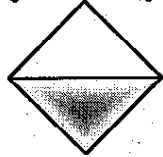
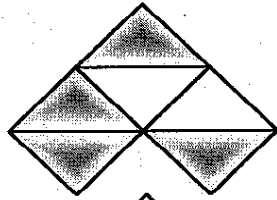
20. Divide:

$$\begin{array}{r}
 \text{T} \quad \text{U} \\
 2 \quad 7 \\
 3 \overline{) 81} \\
 \underline{-6} \phantom{0} \\
 21 \\
 \underline{-21} \\
 0 \quad 0
 \end{array}$$

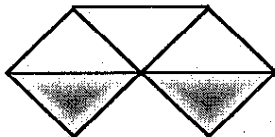
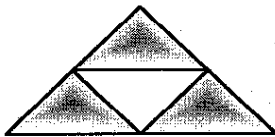
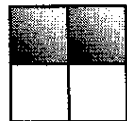
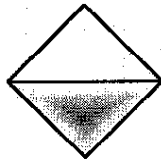
$$\begin{array}{r}
 \text{T} \quad \text{U} \\
 1 \quad 6 \\
 4 \overline{) 64} \\
 \underline{-4} \phantom{0} \\
 24 \\
 \underline{-24} \\
 0 \quad 0
 \end{array}$$

# Fractions

21. Match equal fractions



Match the figure to the appropriate fractions :

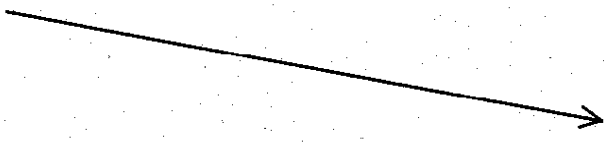


$1/4$

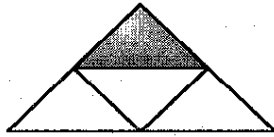
$1/2$

$2/4$

$2/5$



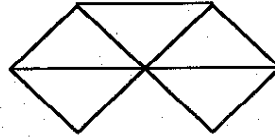
22. Color



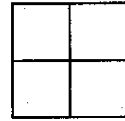
$\frac{1}{4}$



$\frac{2}{3}$



$\frac{5}{5}$

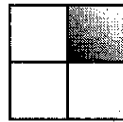


$\frac{3}{4}$

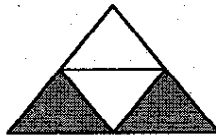
23. Write the fraction of the shaded part



$\frac{1}{3}$



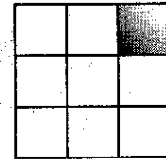
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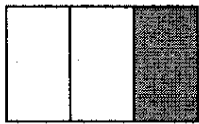


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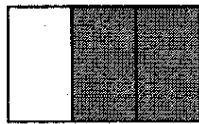
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24. Complete the fractions



$\frac{1}{3}$

Parts shaded



$\frac{2}{3}$

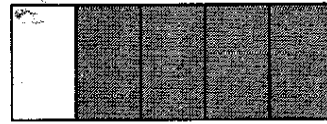
Parts shaded

$\frac{3}{3}$

Equal Parts

$\frac{3}{3}$

Equal Parts



$\frac{4}{5}$

Parts shaded

$\frac{5}{5}$

Equal Parts

25. Compare Fractions using  $<$ ,  $>$ ,  $=$

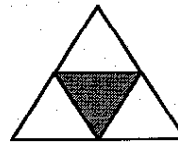


$\frac{3}{4}$

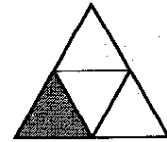
$>$



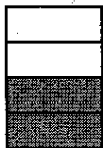
$\frac{1}{4}$



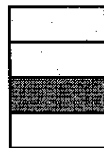
\_\_\_\_\_



$\frac{1}{4}$



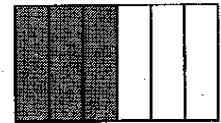
$\frac{2}{4}$



$\frac{1}{4}$



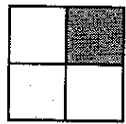
$\frac{2}{6}$



$\frac{3}{6}$

## Addition and Subtraction of Fraction

26. Solve the problems:



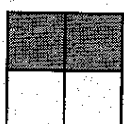
$\frac{1}{4}$

+

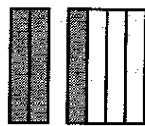


$\frac{1}{4}$

=



$\frac{2}{4}$

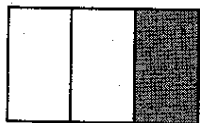


$\frac{3}{6} - \frac{2}{6}$

=



\_\_\_\_\_



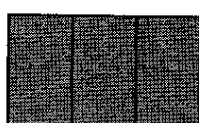
$\frac{1}{3}$

+



$\frac{2}{3}$

=



\_\_\_\_\_



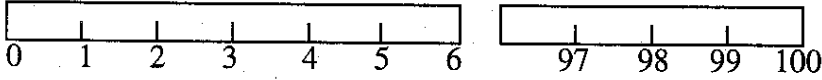
$\frac{3}{4} - \frac{1}{4} =$  \_\_\_\_\_

# Measurement

## Length

Lengths are measured by meter

$$1 \text{ m} = 100 \text{ cm}$$



27. Use the ruler and measure the following objects

The length of the pencil is  \_\_\_\_\_ cm.

The length of the book is  \_\_\_\_\_ cm.

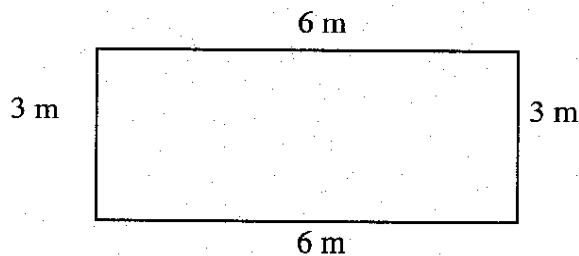
The length of the eraser is  \_\_\_\_\_ cm.

28. What is the difference between the length of the pen and the eraser? \_\_\_\_\_ cm.

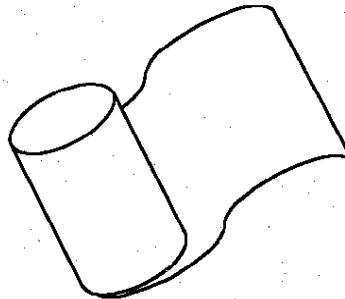
29. What is the total length of the pencil, the book and the eraser? \_\_\_\_\_ cm.

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

31. Find the perimeter of this rectangle



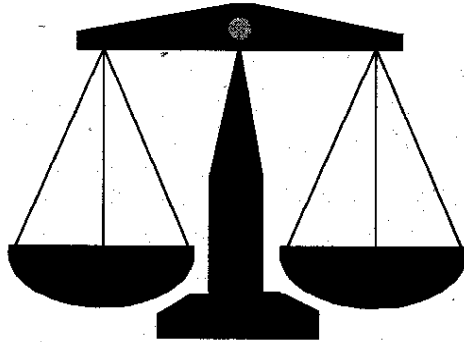
32. Marry bought a roll of clothes 16 meters long. She cut 12 meters to make a dress, how many meters are left?



## **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. Shafiq 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 1<sup>st</sup> is farmer's day

Hamal 7<sup>th</sup> -9<sup>th</sup> 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.

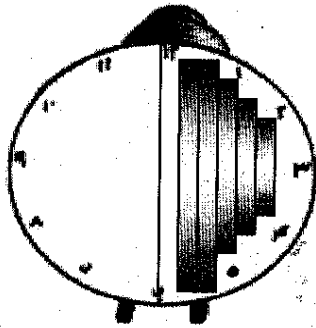
One hour is 60 minutes.

There are two hands on a clock, the short hand tells the hour, and the long hand tells the minute.

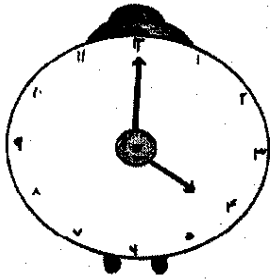
The long hand takes 5 minutes to move from one number to the next.

Imagine the face of the clock is divided in two halves.

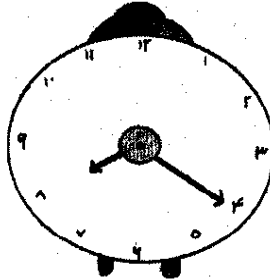
When the minute hand is on the left side we say, **to** the hour.



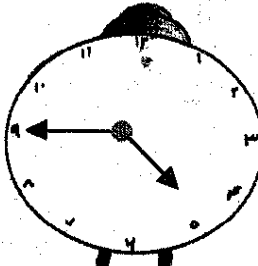
When the minute hand is on the right side, we say **past** the hour.



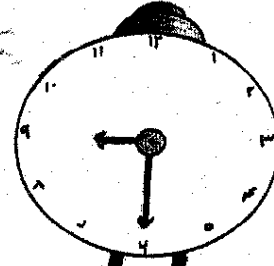
4 o'clock



20 minutes past 8



15 minutes to 5

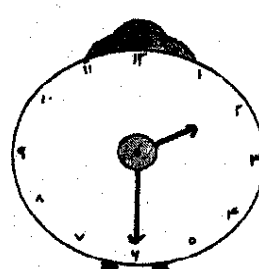
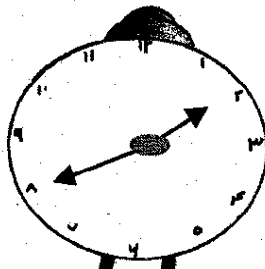
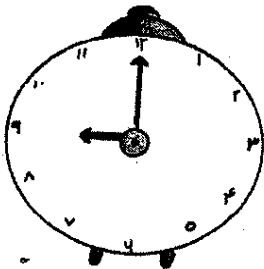


30 minutes past 9

38. Count by fives: Complete the pattern







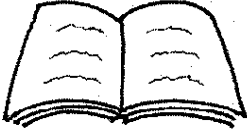

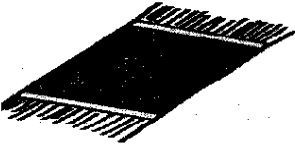
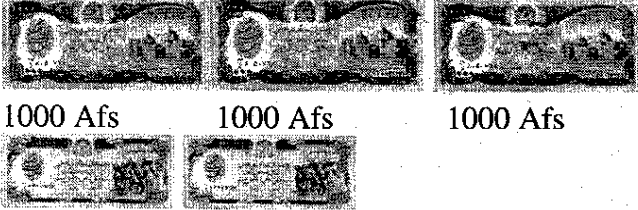

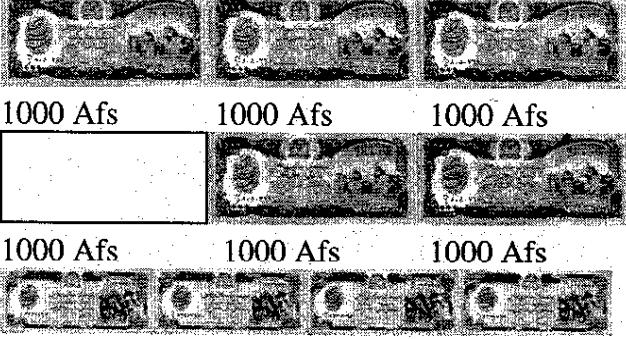
0	5	10		20	25			40		50		60
---	---	----	--	----	----	--	--	----	--	----	--	----

39. Write the time:

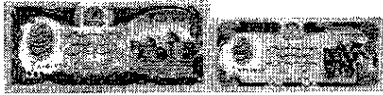


# Money

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



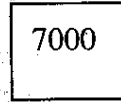
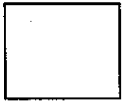
1000 Afs      1000 Afs



1000 Afs      1000 Afs



1000 Afs



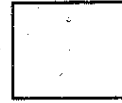
1000 Afs



50 Afs, 20 Afs, 10 Afs



50 Afs, 20 Afs, 10 Afs



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?

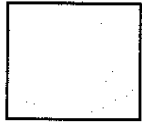
# Shapes

41. Match

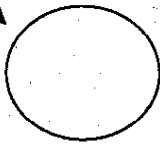
Circle



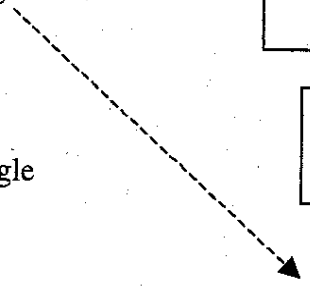
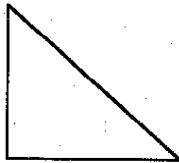
Triangle



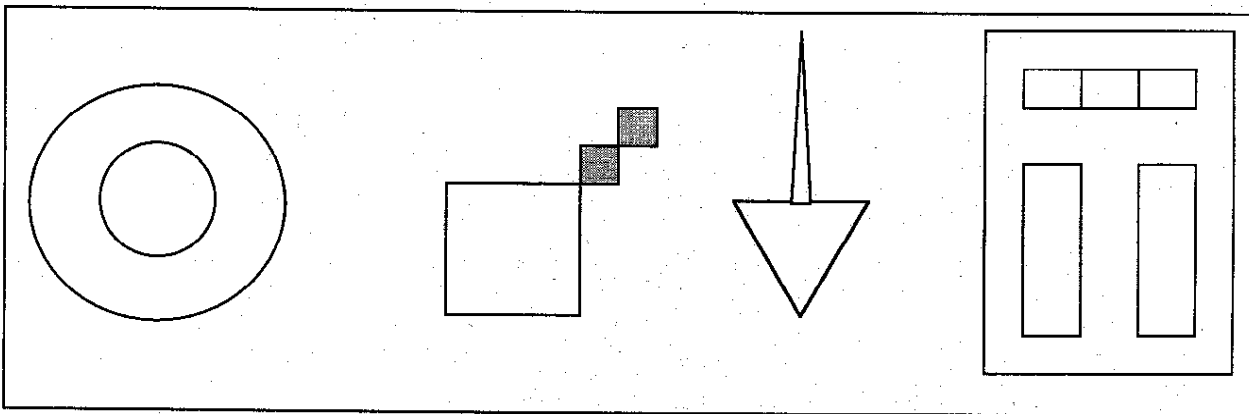
Rectangle



Square

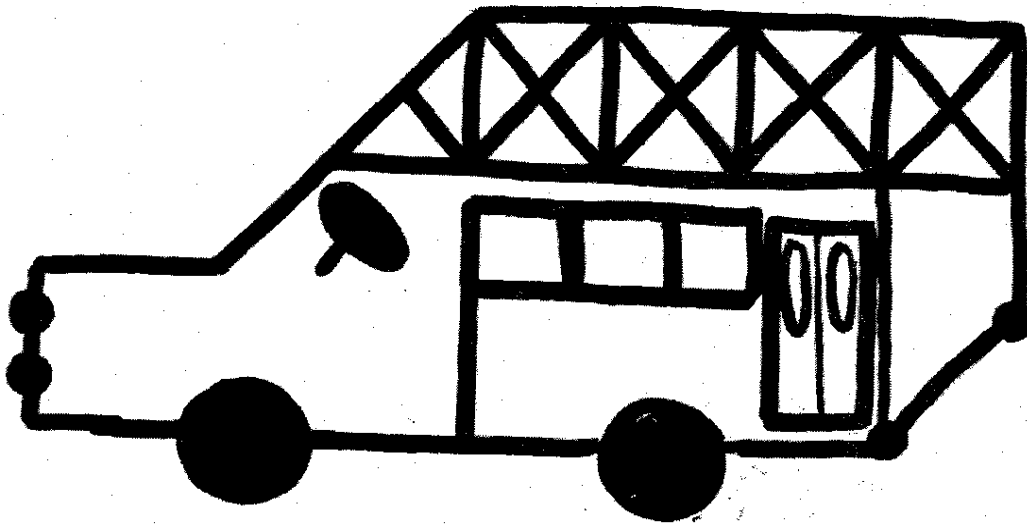


42. Write the shape of following objects: circle, rectangle, triangle and square.



43. \_\_\_\_\_

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



Triangles

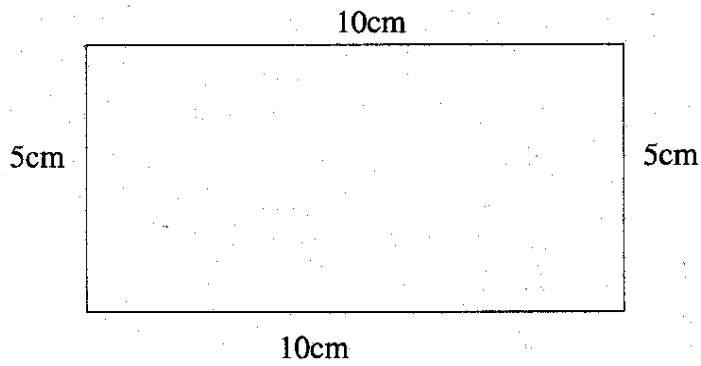
Circles

Rectangles

Squares

## Perimeter

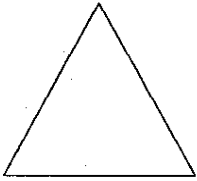
The perimeter is the length of the sides of an object



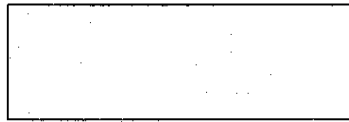
The length of the sides is:

$$10 + 5 + 10 + 5 = 30 \text{ cm}$$

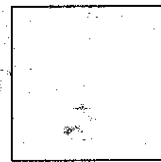
44. Measure the sides of the following figures:



\_\_\_\_\_

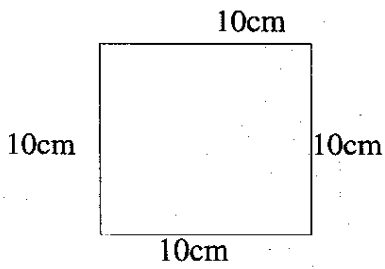


\_\_\_\_\_

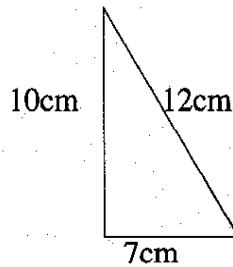


\_\_\_\_\_

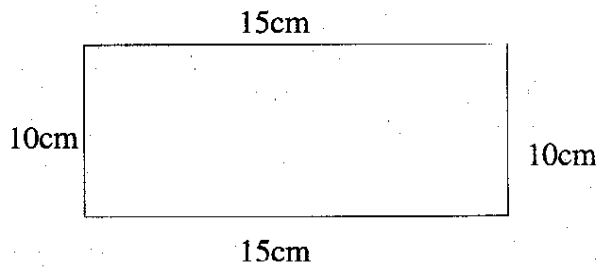
45. Find the perimeter of the following figures



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_





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