Mathematics

for
Primary Stage - Year 4

Second term

Authors

Dr. Fayez Mourad Mena

Dr. Jean Michael Hanna

Dr. Ahmed Mohamed Sayed Ahmed

2012 - 2013

Foreword

We are pleased to introduce this book " *Mathematics for Primary stage - Year 4* " to our children. We have done all what we can to make studying mathematics an interesting job for you. We are confident in your abilities in understanding the subject of the book, but even seeking for more.

Besides the interesting figures and drawings, we took into consideration to increase cross-curricular and real life mathematics applications, where you sense the value and importance of studying mathematics. In many situations, you will find that we ask you to use a calculator to check mathematical operations, and invite you to use the computer to conduct some operations and draw some figures and decorate them. Towards the end of every unit, you will find some activities (sometimes may be closer to puzzles), in order to enjoy studying mathematics, where you will find great, but calculated, challenges that alerts your minds and develops your tendencies.

Be careful to follow all what is written, conduct all activities and do not hesitate to question your teacher in all what you may face of any difficulties.

Remember that many of the mathematics questions which have more than one correct answer, and studying it bears values that reflect this great humanitarian effort.

May God help you and us to acheive what is good for our beloved nation Egypt.

The authors

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Unit One

Fractions and Decimal Numbers

Reviewing what was studied about Fractions

Exercise 1

1 Write the fraction that represents the coloured part according to the whole figure.

$$\frac{...}{...} \qquad \frac{...}{...} \qquad \frac{...}{...}$$

$$\frac{...}{...} \qquad \frac{...}{...} \qquad \frac{...}{...}$$
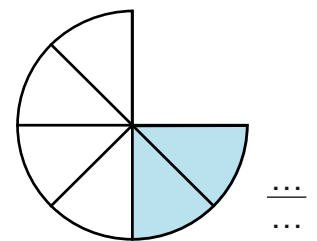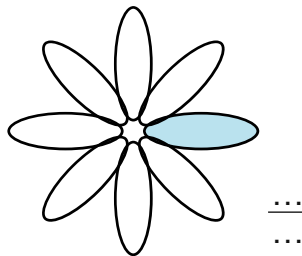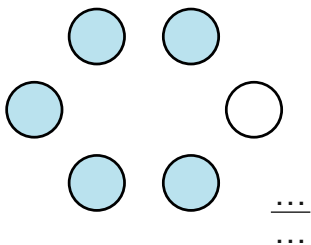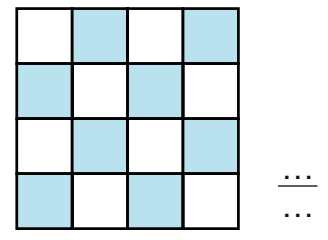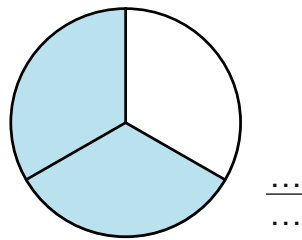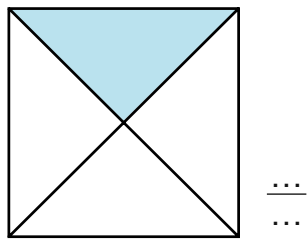
2 Colour according to the fraction.

$$\frac{5}{6} \qquad \frac{2}{5} \qquad \frac{1}{3} \qquad \frac{1}{4}$$
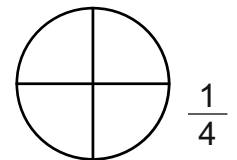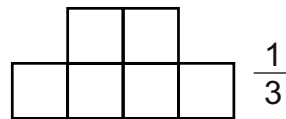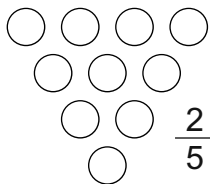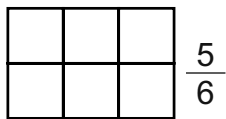
3 Write each of the following fractions in its suitable place on the number line.

$$\frac{1}{2} \ , \ \frac{1}{10} , \ \frac{9}{10} , \ \frac{7}{10}$$

0   1
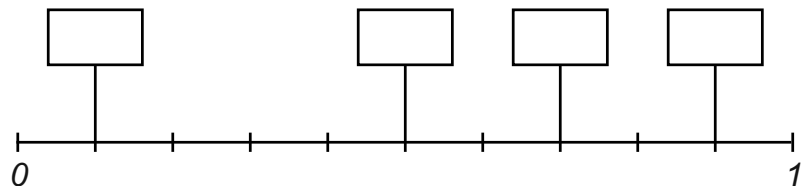
4 Write each of the following whole numbers as an improper fraction: 8 , 4 , 3 , 7 , 10 , 20 , then complete

$$8 = \frac{...}{1} \ , \qquad 4 = \frac{...}{2} \ , \qquad 3 = \frac{...}{3} \ ,$$

$$7 = \frac{14}{...} \ , \qquad 10 = \frac{50}{...} , \qquad 20 = \frac{...}{2}$$

5 Complete.

$$1 = \frac{3}{...} = \frac{...}{8} = \frac{10}{...} = \frac{5}{...}$$

$$\frac{1}{2} = \frac{5}{...} = \frac{3}{...} = \frac{6}{...} = \frac{...}{20}$$

$$\frac{3}{4} = \frac{...}{8} = \frac{9}{...} = \frac{...}{20} = \frac{30}{...}$$

6 Simplify each of the following fractions.

$$\frac{6}{12} \quad , \quad \frac{5}{20} \quad , \quad \frac{7}{21} \quad , \quad \frac{15}{27}$$

7 Complete as in the example.

Example: $\frac{50}{10} = \frac{5}{1} = 5$

$$\frac{70}{10} = \frac{...}{1} = ... \quad , \quad \frac{30}{10} = \frac{3}{...} = ...$$

$$\frac{20}{5} = \frac{...}{1} = ... \quad , \quad \frac{28}{7} = \frac{...}{...} = ...$$

$$\frac{9}{3} = \frac{...}{...} = ... \quad , \quad \frac{90}{3} = \frac{...}{...} = ...$$

8 Complete.

$$\frac{5}{7} + \frac{1}{7} = \frac{...}{...} \quad , \quad \frac{6}{11} - \frac{3}{11} = \frac{...}{...}$$

$$\frac{2}{5} + \frac{...}{...} = \frac{3}{5} \quad , \quad \frac{4}{7} - \frac{...}{...} = \frac{1}{7}$$

$$\frac{3}{4} + \frac{...}{...} = 1 \quad , \quad 1 - \frac{...}{...} = \frac{1}{5}$$

Fractions

First: Fractional number

We know that, any whole number can be written in the form of a fraction using more than one method.

For example: $7 = \frac{7}{1} = \frac{14}{2} = \frac{21}{3} = \ldots\ldots,$ $1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \ldots\ldots$

So, we can find the sum of a mixed number and put it as an improper fraction.

For example: $3 + \frac{1}{2} = \frac{6}{2} + \frac{1}{2} = \frac{7}{2}$ (because $3 = \frac{6}{2}$)

We can write $(3 + \frac{1}{2})$ in the form $3\frac{1}{2}$

Example 1: Write each of the following mixed numbers as an improper fraction: $1\frac{1}{2}$, $5\frac{1}{3}$, $2 + \frac{1}{10}$

Solution: $1\frac{1}{2} = 1 + \frac{1}{2} = \frac{2}{2} + \frac{1}{2} = \frac{3}{2}$

$5\frac{1}{3} = 5 + \frac{1}{3} = \frac{15}{3} + \frac{1}{3} = \frac{16}{3}$

$2 + \frac{1}{10} = \frac{20}{10} + \frac{1}{10} = \frac{21}{10}$

Example 2: Write each of the following improper fractions as a mixed number: $\frac{4}{3}$, $\frac{17}{5}$, $\frac{21}{10}$

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

$\frac{17}{5} = \frac{15}{5} + \frac{2}{5} = 3 + \frac{2}{5} = 3\frac{2}{5}$

$\frac{21}{10} = \frac{20}{10} + \frac{1}{10} = 2 + \frac{1}{10} = 2\frac{1}{10}$

Exercise 2

1 Complete.

$5 = \frac{...}{2}$, $\frac{18}{...} = 3$, $7 = \frac{...}{10}$, $\frac{10}{10} = ...$

2 Write each of the following as an improper fraction:

$3\frac{1}{4}$, $10\frac{1}{2}$, $7\frac{1}{3}$, $2\frac{1}{5}$, $4\frac{1}{10}$

3 Write each of the following as a mixed number:

$\frac{5}{4}$, $\frac{11}{10}$, $\frac{9}{2}$, $\frac{18}{5}$, $\frac{63}{10}$

4 Write each of the following in its suitable place on the number line: $1\frac{1}{10}$, $2\frac{1}{2}$, $\frac{9}{10}$, $1\frac{3}{10}$, $2\frac{7}{10}$, $\frac{1}{2}$
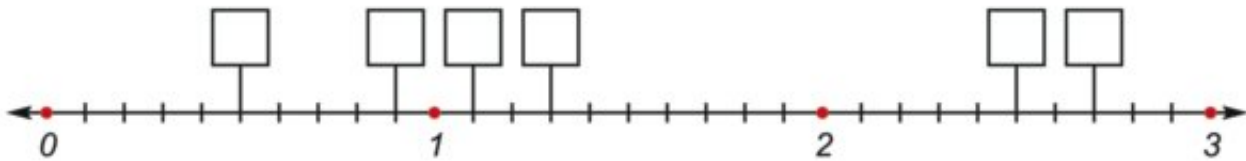
5 Find the result of the following as mixed number

a $\frac{5}{9} + \frac{3}{9} + \frac{4}{9}$

b $(\frac{4}{7} + \frac{5}{7}) - \frac{1}{7}$

c $\frac{2}{3} + \frac{4}{3} + \frac{1}{3}$

d $(\frac{3}{5} + \frac{6}{5}) + 1$

5

Second :
The equal fractions and Comparing fractions
Example 1 :

$$\overset{\times 2}{\overset{\frown}{\underset{\times 2}{\underset{\smile}{\frac{3}{5}}}}} = \frac{6}{10} \qquad \overset{\div 4}{\overset{\frown}{\underset{\div 4}{\underset{\smile}{\frac{8}{12}}}}} = \frac{2}{3}$$

if Multijly or divide each of the numerator and the denominator by the Same number (other than zero) you have the equal fractions.

Example (2)
What is the greater $\frac{4}{7}$ or $\frac{2}{3}$?
Solution
L. C. M. for 7, 3 is 21

Then $\frac{4}{7} = \frac{4 \times \dots}{7 \times 3} = \frac{\dots}{21}$ 	 $\frac{2}{3} = \frac{\dots \times \dots}{\dots \times \dots} = \frac{\dots}{\dots}$

Then .... > ....

Drill 1 :

(a) put the following fractions in the Simplest form

$$\frac{9}{15} \ , \ \frac{24}{28} \ , \ 1\frac{6}{8} \ , \ \frac{35}{25}$$

(b) Arrange in descending order

$$\frac{3}{7} \ , \ \frac{1}{3} \ , \ \frac{5}{21}$$

Drill 2 :

Find the result in the Simplest form

a) $(\frac{7}{8} + \frac{5}{8}) - \frac{1}{2}$ 	 b) $\frac{13}{3} - (\frac{2}{3} + \frac{5}{3})$

Drill 3
Complete.

$$\frac{3}{5} = \frac{9}{\dots} \qquad \frac{4}{7} = \frac{\dots}{35} = \frac{\dots}{\dots} \qquad \frac{2}{13} = \frac{\dots}{52}$$

Third :

Adding and subtracting the fractions have differents denominators.

Example (1)

Find the result $\dfrac{3}{5} + \dfrac{3}{4}$

Solution:

L. C. M. is 20

$$\dfrac{3}{5} + \dfrac{3}{4} = \dfrac{12}{20} + \dfrac{15}{20} = \dfrac{27}{20} = 1\dfrac{7}{20}$$

Example (2)

Find the result in the simplest form

$$(2\dfrac{2}{3} + \dfrac{1}{5}) - \dfrac{4}{5}$$

Solution:

L. C. M. for the denominators is 15

$$= (\dfrac{8}{3} + \dfrac{1}{5}) - \dfrac{4}{5} = (\dfrac{40}{12} + \dfrac{3}{15}) - \dfrac{12}{15}$$

$$= \dfrac{43}{15} - \dfrac{12}{15} = \dfrac{31}{15} = 2\dfrac{1}{15}$$

Exercise (3)

(1) Put in Simplest form

a) $\dfrac{12}{42}$ b) $\dfrac{40}{45}$ c) $\dfrac{15}{24}$ d) $\dfrac{28}{70}$

(2) Find the result in a form of mixed number

a) $\dfrac{3}{8} + \dfrac{2}{8} + \dfrac{4}{8}$ b) $\dfrac{2}{11} + \dfrac{5}{11} + \dfrac{7}{11}$

c) $(\dfrac{8}{15} + \dfrac{13}{15}) - \dfrac{4}{15}$ d) $(\dfrac{7}{9} - \dfrac{2}{9}) + \dfrac{4}{9}$

(3) Put (< or = or >)

a) $\dfrac{5}{6}$ ☐ $\dfrac{2}{3}$

b) $\dfrac{8}{12}$ ☐ $\dfrac{2}{3}$

c) $\dfrac{2}{5}$ ☐ $\dfrac{5}{10}$

d) $\dfrac{6}{7}$ ☐ $\dfrac{5}{6}$

(4) Compare between each of the Following two fractions

a) $\dfrac{5}{42}$, $\dfrac{3}{7}$

b) $\dfrac{8}{9}$, $\dfrac{9}{10}$

(5) Puit in Simplest form

a) $\dfrac{3}{6}$

b) $\dfrac{15}{18}$

c) $2\dfrac{9}{12}$

d) $\dfrac{45}{30}$

(6) Complete.

a) $\dfrac{5}{15} = \dfrac{...}{3}$

b) $\dfrac{8}{9} = \dfrac{48}{....}$

c) $\dfrac{...}{13} = \dfrac{4}{26}$

d) $\dfrac{5}{7} = \dfrac{30}{....}$

(7) Arrang in descending order $\dfrac{3}{5}$, $\dfrac{2}{3}$, $\dfrac{7}{15}$

(8) Find the result in a simplest form $\dfrac{3}{5}$; $\dfrac{2}{3}$; $\dfrac{7}{15}$

a) $\dfrac{2}{3} + \dfrac{3}{4}$

b) $\dfrac{5}{6} - \dfrac{1}{3}$

c) $1\dfrac{4}{7} - \dfrac{10}{21}$

c) $(3\dfrac{1}{4} + 1\dfrac{1}{3}) - \dfrac{15}{12}$

e) $(7\dfrac{2}{5} + 4\dfrac{1}{6}) - \dfrac{32}{30}$

(9) Ahmed has L. E. 10 He lought a pen for L.E. $3\dfrac{1}{4}$ and notebook for L. E. $2\dfrac{1}{4}$ Find the remainder with Ahmed.

Decimal Numbers

We know that the number $\frac{23}{10}$ can be written in the form of a mixed number as follows: $\frac{23}{10} = \frac{20}{10} + \frac{3}{10} = 2 + \frac{3}{10} = 2\frac{3}{10}$

Also, this number can be written by another way using a point that is called the **decimel point** as follows:

$2\frac{3}{10}$ = 2.3 and is read as two and three tenths or two point three.

Also, $1\frac{9}{10}$ = 1.9 , $12\frac{5}{10}$ = 12.5 , $\frac{7}{10}$ = 0.7 and so on ……

Drill 1:

Express each of the following, using the decimal point:

$4\frac{7}{10}$, $9\frac{1}{10}$, $1\frac{5}{10}$, $\frac{6}{10}$

$4\frac{7}{10}$ = …… , $9\frac{1}{10}$ = …… , $1\frac{5}{10}$ = …… , $\frac{6}{10}$ = ……

Note: It is possible to express other numbers as $7\frac{1}{2}$ using the decimal point as follows: $7\frac{1}{2} = 7\frac{5}{10}$ = 7.5 (because $\frac{1}{2} = \frac{5}{10}$)

and also, $3\frac{2}{5} = 3\frac{4}{10}$ = 3.4 (because $\frac{2}{5} = \frac{4}{10}$)

Drill 2:

Express each of the following, using the decimal point:

$2\frac{4}{5}$, $3\frac{1}{2}$, $10\frac{1}{5}$

$2\frac{4}{5} = 2\frac{\cdots}{10}$ = …… , $3\frac{1}{2} = 3\frac{\cdots}{10}$ = …… , $10\frac{1}{5} = 10\frac{\cdots}{10}$ = ……

Drill 3:

Convert each of the following in a decimal form as in the example.

Example: $\dfrac{9}{5} = \dfrac{9 \times 2}{5 \times 2} = \dfrac{18}{10} = 1.8$, $\dfrac{34}{20} = \dfrac{34 \div 2}{20 \div 2} = \dfrac{17}{10} = 1.7$

(a) $\dfrac{17}{2} = \dfrac{\ldots \times 5}{\ldots \times 5} = \dfrac{\ldots}{\ldots} = \ldots\ldots$

(b) $\dfrac{35}{50} = \dfrac{\ldots\ldots\ldots}{\ldots \div 5} = \dfrac{\ldots}{\ldots} = \ldots\ldots$

Example: Convert each of the following improper fractions to decimal form: $\dfrac{18}{5}$, $\dfrac{11}{2}$, $\dfrac{18}{20}$

Complete the solution:

$\dfrac{18}{5} = \dfrac{15}{5} + \dfrac{3}{5} = 3 + \dfrac{3}{5} = 3 + \dfrac{6}{10} = 3\dfrac{6}{10} = 3.6$

$\dfrac{11}{2} = \dfrac{10}{2} + \dfrac{1}{2} = 5 + \dfrac{1}{\ldots} = 5 + \dfrac{\ldots}{10} = 5\dfrac{\ldots}{5} = \ldots \, . \, \ldots$

$\dfrac{18}{20} = \dfrac{\ldots}{10} = \ldots \, . \, \ldots$

Note: The number 2.3 consists of two parts, a whole number and a decimal,

2 is the whole number part (2 units)	0.3 is the decimal part (3 tenths)

and can be represented by the shaded part of the following figure.

2   0.3
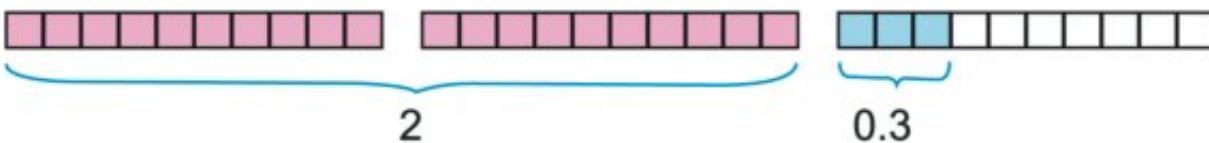
2.3 = two and three tenths

Number	Units	Tenths
2.3	2 ·	3

10

Exercise 4

1 Write each of the following using the decimal point.

   a $5\frac{1}{10}$, $8\frac{7}{10}$, $\frac{9}{10}$, $\frac{1}{10}$, $15\frac{3}{10}$

   b $1\frac{1}{2}$, $4\frac{3}{5}$, $\frac{14}{20}$, $\frac{8}{40}$

2 Convert each of the following fractions in the decimal form:

   $\frac{7}{2}$, $\frac{9}{5}$, $\frac{4}{5}$, $\frac{1}{2}$, $\frac{14}{20}$

3 Convert each of the following decimal numbers to improper fractions: 1.2 , 0.3 , 6.7 , 15.1

4 Colour the part that represents each of the following numbers.

   a 1.4

   b 2.7

   c 0.9

   d 1.3

5 Represent each of the following numbers on the number line:
2.1 , 0.3 , 0.7 , 2.6 , 1.4.
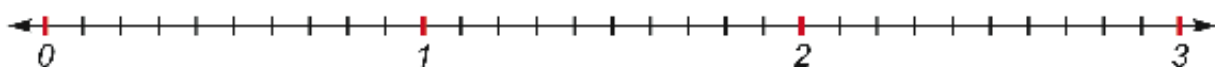
6 Write the suitable number inside each square according to its place on the number line.
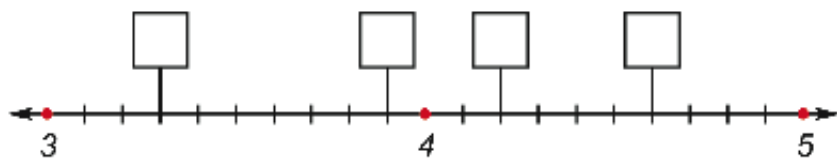
7 Complete the table.

	Number	Hundreds	Tens	Units		Tenths
Example:	523.7 →	5	2	3	•	7
	416.9 →				•	
	502.7 →				•	
	39.4 →				•	
	→	4	8	3	•	1
	→		6	0	•	9

8 Complete as the example.

3.4 = 3 + ...   ,   7.2 = ... + 0.2

6.8 = ... + ...   , ... = 6 + 0.3

...... = 5 + 0.1   , ... = 0.2 + 3

9 Complete as the example.

Example: 0.3 + 0.7 = 1

...... + 0.4 = 1   ,   0.1 + ... = 1

...... + 0.5 = 1   , ... + 0.2 = 1

0.1 + 0.2 + ... = 1   ,   0.3 + 0.3 + ... = 1

0.4 + 0.3 + ... = 1   ,   0.1 + 0.8 + ... = 1

10 Underline the tens digit and circle the tenths digit in each of the following numbers as in the example.

Example: 7 $\underline{3}$ 4 . ②

4 5 6 . 2   ,   4 6 7 . 8   ,   5 4 3 2 . 1

2 0 6 0 . 9   ,   1 0 0 . 1   ,   4 0 5 0 . 0

More about Decimal Numbers

1 Complete. $\frac{157}{100} = \frac{100}{100} + \frac{\cdots}{100} = 1 + \frac{\cdots}{100} = 1\frac{57}{100}$

This number can be written using the decimal point as follows:

$1\frac{57}{100} = 1.57$ and is read as, one and fifty-seven hundredths.

Also, $3\frac{14}{100} = 3.14$, $67\frac{39}{100} = 67.39$, $3\frac{25}{100} = 3.25$

Drill 1:

Write each of the following as a decimal number.

$8\frac{27}{100}$, $19\frac{51}{100}$, $127\frac{73}{100}$, $\frac{21}{100}$

2 Complete. $\frac{103}{100} = \frac{100}{100} + \frac{\cdots}{100} = 1 + \frac{\cdots}{100} = 1\frac{3}{100}$

In this case, the number is written as follows:

$1\frac{3}{100} = 1.03$ and is read as one and three hundredths.

Note: Notice that we did not write that number as 1.3 because in that case, it means $1\frac{3}{10}$ and not $1\frac{3}{100}$.

Number	Units	Tenths	Hundredths
1.03 ⟶	1 .	0	3

Drill 2:

Write each of the following as a decimal number.

$2\frac{1}{100}$, $15\frac{7}{100}$, $\frac{209}{100}$, $\frac{502}{100}$

Note: It is possible to write other numbers in the decimal form, as

$8\frac{11}{50}$ is written as follows: $8\frac{11}{50} = 8\frac{22}{100} = 8.22$

And also, $8\frac{1}{4} = 8\frac{25}{100} = 8.25$ $\qquad 47\frac{2}{25} = 47\frac{8}{100} = 47.08$

Drill 3:

Write each of the following as a decimal number.

$1\frac{9}{50}$, $23\frac{8}{25}$, $106\frac{1}{4}$, $\frac{3}{50}$, $\frac{27}{4}$

$1\frac{9}{50} = 1\frac{\cdots}{100} = \ldots\ldots$ $\qquad\qquad\qquad\qquad 23\frac{8}{25} = 23\frac{\cdots}{100} = \ldots\ldots$

$106\frac{1}{4} = 106\frac{\cdots}{100} = \ldots\ldots$ $\qquad\qquad\qquad\qquad \frac{3}{50} = \frac{\cdots}{100} = \ldots\ldots$

$\frac{27}{4} = \cdots\frac{\cdots}{4} = \cdots\frac{\cdots}{100} = \ldots\ldots\ldots$

3 Complete. $\quad \frac{1007}{1000} = \frac{1000}{1000} + \frac{\cdots}{1000} = 1 + \frac{\cdots}{1000} = 1\frac{7}{1000}$

In this case, the number is written as follows:

$1\frac{7}{1000} = 1.007$ $\qquad$ and is read as one and seven thousandths.

Number	Units	Tenths	Hundredths	Thousandths
1.007 →	1 ⊙	0	0	7

15

Drill 4:
Notice and Complete

$$\frac{3}{10} = \frac{3\times10}{10\times10} = \frac{30}{100} \quad i.e \quad 0.3 = 0.30$$

$$\frac{40}{100} = \frac{40\div10}{10\div10} = \frac{\cdots}{\cdots} \quad i.e \quad 0.40 = \ldots$$

$0.2 = 0.\Box\Box$, $0.70 = 0.\Box$, $0.1 = 0.\Box\Box$

Drill 5:
Notice and Complete
a) $0.47 = 0.07 + 0.4$
b) $0.68 = 0.\ldots + 0.\ldots$
c) $2.35 = 0.\ldots + 0.\ldots + 2$

Example: Convert each of the following numbers from fractions to decimal numbers.

$$3\frac{9}{1000} \quad , \quad \frac{117}{500}$$

$$3\frac{9}{1000} = 3.009$$

Complete the Solution $\quad \dfrac{117}{500} = \dfrac{\cdots}{1000} = \ldots \cdot \ldots$

Drill 6:
Write as a decimel number

a) $\dfrac{3}{8} = \dfrac{3\times\cdots}{10\times125} = \dfrac{\cdots}{\cdots} = \ldots$,
b) $\dfrac{7}{125} = \dfrac{\cdots}{\cdots} = \ldots$

c) $\dfrac{3}{200} = \dfrac{\cdots}{\cdots} = \ldots =$,
d) $\dfrac{11}{250} = \ldots$

Exercise 5

1 Write each of the following as a decimal number.

$$4\frac{7}{50}, \quad 26\frac{1}{25}, \quad \frac{3}{4}, \quad 57\frac{1}{2}, \quad \frac{27}{500}, \quad \frac{64}{400}$$

2 Convert each of the following numbers from the fractional form to the decimal form:

$$\frac{53}{50}, \quad \frac{72}{200}, \quad \frac{1002}{300}, \quad \frac{24}{400}, \quad \frac{14}{2000}$$

3 Write each of the following decimal numbers as a mixed number:

3.1 , 17.23 , 5.017 , 28.001 , 6.09

4 Write the suitable number inside each rectangle according to its place on the number line: 0.75 , 0.79 , 0.73 , 0.71
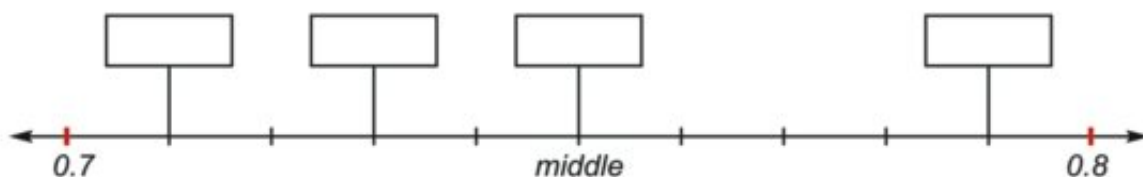
5 Write the suitable number inside each rectangle according to its place on the number line: 2.523 , 2.537 , 2.529 , 2.531
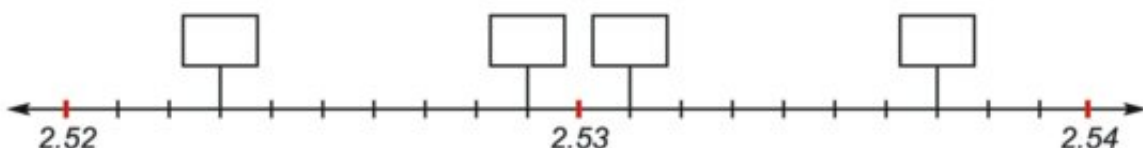
6 Write suitable numbers inside the rectangles according to their place on the number line.
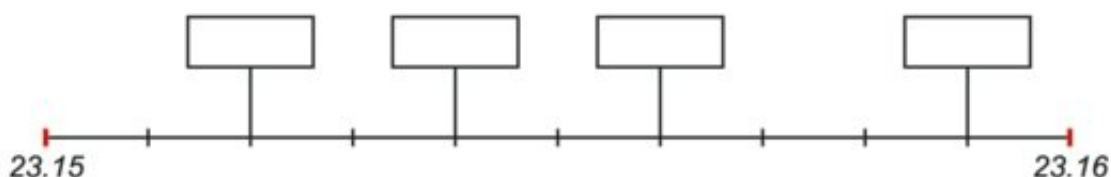
7 Complete as in the example

Example:

| 74.531 |
| 74 + 0.531 |
| 74 + 0.5 + 0.03 + 0.001 |

| 8.746 |
| |
| |

| |
| 25 + 0.691 |
| |

| |
| |
| 103 + 0.1 + 0.002 |

8 Write the value of the digit 4 in each of the following numbers

4.503 , 42.37 , 11.46 , 0.241 , 27.034 , 0.104 ,

704.16 , 0.004

18

Comparing Two Decimal Numbers and Ordering a Set of Decimal Numbers

Preface

First : **Any mixed number is included between two whole numbers**

In the following examples, the difference between the two whole numbers is as small as possible.

a   17.92 is included between 17 and 18   i.e. $17 < 17.92 < 18$

b   0.35 is included between 0 and 1   i.e. $0 < 0.35 < 1$

c   58 is included between 57 and 59   i.e. $57 < 58 < 59$

Drill 1:

Complete with whole numbers, such that the difference between them is as small as possible, in each of the following.

...... < 8.04 < .... < 26.63 < ......
...... < 105.1 < .... < 0.92 < ......

Second : Finding the decimal numbers included between two given numbers

Example 1: Write a number that lies between 17 and 18.
Solution: There are many numbers that lie between 17 and 18, such as: 17.1 , 17.2 , 17.3 , 17.58 , 17.958 , ... etc.

Example 2: Write a number that lies between 17.1 and 17.2.
Solution: There are many numbers that lie between 17.1 and 17.2, such as: 17.11 , 17.12 , ... etc.

Example 3: Write three numbers that lie between 57.7 and 57.9 representing them on the number line.
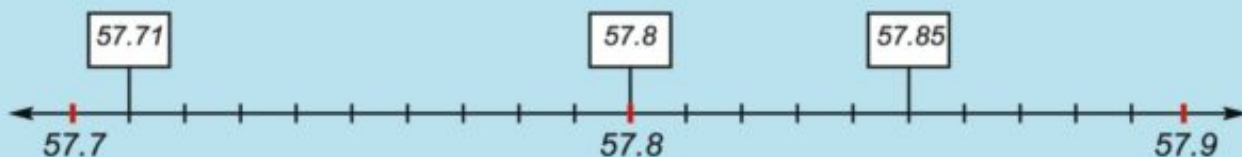
The three numbers may be 57.71 , 57.8 and 57.85. Find other numbers that lie between 57.7 and 57.9.

Third; Comparing, ordering the decimal numbers

Drill 2:

Put the suitable sign < or > in each ☐.

a	5.1 ☐ 4.3		b	17.22 ☐ 9.7	
c	53.01 ☐ 49.98		d	86.68 ☐ 112.1	
e	273.05 ☐ 2732.5		f	508 ☐ 436.9	

Drill 3:

Compare each of the following pairs of numbers.

a 4.6 and 4.7   **b** 18.5 and 18.05   **c** 0.6 and 0.26

d 40.4 and 40.14   **b** 57 and 57.02   **f** 0.73 and 0.09

Drill 4:

It is required to order the set of the following numbers from the smallest to the greatest: 4.2 , 3.6 , 4.08, then complete.

The smallest of these numbers is …… (because it is smaller than ……, while each of the other numbers is greater than ……).

By comparing the other two numbers we find that …… < ……

because …………………

Then, the order of the numbers from the smallest to the greatest is:

…… , …… , ……

Now, represent these three numbers on the number line.
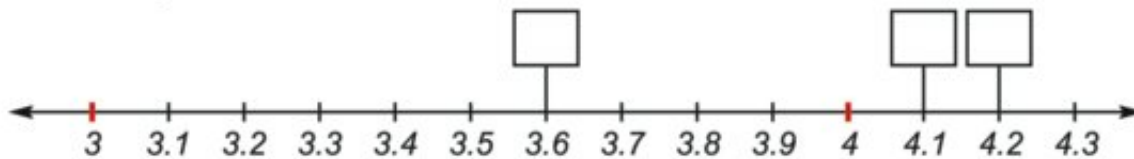
Complete …. < …. < …

Exercise 6

1 Which is greater:

   a 16.3 or 6.63?   **b** 5.07 or 6?

   c 3.24 or 3.42?   **d** 29.15 or 29.5?

2 Which is smaller:

   a 3.5 or 3.05?   **b** 14.7 or 9.47?

   c 27 or 23.9?   **d** 0.76 or 0.9?

3 Put the suitable sign < , = or > in each ☐.

   a 28.4 ☐ 2.84   **b** 3.14 ☐ 3.2

   c 5.6 ☐ 5.60   **d** 0.92 ☐ 1.02

4 Write each of the following numbers in its suitable place on the number line, then complete: 7.8 , 7.3 , 9.1 , 8.7
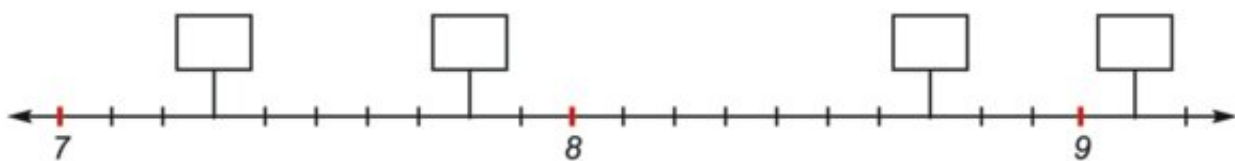
The order of the four numbers is ...... < ...... < ...... < ......

5 Use the numbers: 1.3 , 3.2 , 10.04 , 3.12 , 3.215 and 1.12, to complete the following.

   a   The numbers greater than 3 are ....

   b   The numbers smaller than 3 are ....

   c   The smallest number is ....

   d   The greatest number is ....

   e   The numbers included between 1, 3 are ....

   f   The numbers included between 2, 4 are ....

   g   The numbers included between 3.15 , 3. 25 are ....

   h   The order of the numbers in an ascending order is:

      .... , ... , ... , ... , ... , ...

6 Which of the numbers inside the rectangle opposite lies:

   a   between 17 and 18?   ....

   b   between 34 and 34.5?   ....

   c   between 33 and 35?   ....

   d   between 17 and 17.5?   ....

   e   between 17 and 17.1?   ....

   f   between 34 and 34.1?   ....

34.2		34.07
	17.03	
17.019		34
	17.7	

7 Write the following numbers in their suitable places on the number line, then arrange them ascendingly:

17.5 , 16.15 , 17.25 , 16.6.

The order is ...... < ...... < ...... < ......

8 Write suitable numbers inside the rectangles, then arrange them desecndingly.
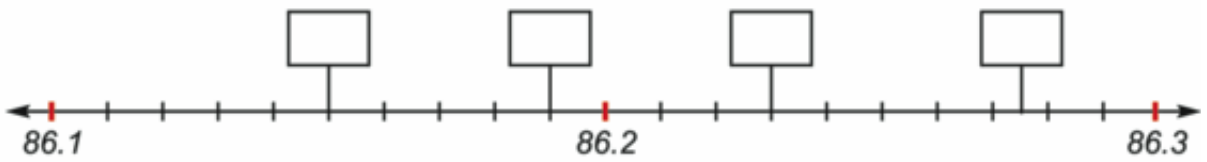
The order is ...... > ...... > ...... > ......

9 Underline the equal numbers in each of the following groups.

a 18.04 , 18.40 , 18.040 , 18.44 , 1.840

b 0.10 , 10.1 , 0.01 , 0.001 , 0.1

c 5.73 , 5.703 , 5.730 , 5.073 , 5.073 , 50.73

d 9.07 , 9.7 , 9.700 , 9.007 , 90.07

10 Arrange the numbers in each of the following groups ascendingly.

a 5.8 , 5.08 , 58 , 8.5
The order is ...... , ... , ... , ...

b 34.12 , 34.2 , 34.102 , 31.24
The order is ...... , ... , ... , ...

c 157 , 152.3 , 152.13 , 157.1
The order is ...... , ... , ... , ...

d 0.3 , 0.003 , 0.033 , 0.33
The order is ...... , ... , ... , ...

First: Adding decimal numbers and mixed numbers

Preface

If you take two pounds and a half from your father and 3 pounds and a quarter from your mother, then how much money do you have i.e. $2\frac{1}{2}$ and $3\frac{1}{4}$.

You know that, half a pound = PT 50 and quarter a pound = PT 25. What you took from your father = 2.5 pounds and from your mother = 3.25 pounds.
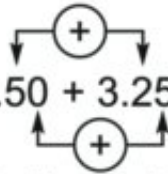
The sum of what you have = 2.50 + 3.25 = LE 5.75

Notice that, we put the digit **0** to the right of the digit **5** in the first number to equal the number of digits after the decimal. Then we added the hundredths parts first, the tenths parts next, then the whole numbers last.

We can carry out the addition operation by another method as follows: $2.5 + 3.25 = 2\frac{5}{10} + 3\frac{25}{100} = 2\frac{50}{100} + 3\frac{25}{100} = 5\frac{75}{100}$ = LE 5.75

Drill:

Make the following mixed numbers have the same number of digits after the decimal point as the example.

Example: 18.7 , 5.06 , 34.258
Solution: The numbers are 18.700 , 5.060 , 34.258

a 256.112 , 0.54 , 1.3
   after lining up the decimal points, the numbers are: ...., ..., ...

b 97.38 , 3.2 , 19.034
   after lining up the decimal points, the numbers are: ...., ..., ...

c 14 , 0.8 , 15.973
   after lining up the decimal points, the numbers are: ...., ..., ...

Example: There are two ways for addition:

1 The horizontal way:

a $\overset{\text{(1)(1)}}{23.4} + 7.8 = 31.2$

b $18.75 + \overset{\text{(1)}}{4.2} = 18.75 + 4.20 = 22.95$

c $365.8 + 82.14 + 1.237$

$= 365.\overset{\text{(1)(1)}}{800} + 82.140 + 1.237 = 449.177$

2 The vertical way:

	a $\overset{\text{(1)(1)}}{23.4}$	**b** $\overset{\text{(1)}}{18.75}$	**c** $\overset{\text{(1)(1)}}{365.8}$
	$+ \ \ 7.8$	$+ \ \ 4.2$	$+ \ \ 82.14$
	31.2	22.95	$+ \ \ \ 1.237$
			449.177

Note: From the above, we notice that when carrying out the addition operation to the decimal numbers or mixed numbers, we make the number of digits to the right side of the decimal point the same by writing zeroes to the right of the last decimal digit because it does not change the value of the decimal number, because:

$2.5 = 2.50 = 2.500 = \ldots$ etc.

Exercises

a 17.3 + 4.6 = ...   b 2.65 + 9.3 = ...

c 13.8 + 5.75 = ...   d 0.875 + 0.43 = ...

e 1.007 +9 = ...   f 13 + 2.65 = ...

g 9.8 + 4.3 = ...   h 213.01 + 27.99 = ...

i 28.65 + 17.3 + 2.05 = ...

j 53.245 + 1.97 + 213.8 = ...

Second: Subtracting Fractions and decimal numbers
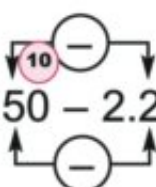
Preface

Essam had seven pounds and a half, he gave his youngest brother two pounds and quarter. How much money is left with Essam?

What Essam had = LE 7.5   What his brother has = LE 2.25

The remainder = 7.5 – 2.25 = 7.50 – 2.25 = LE 5.25

Notice that, writing the digit **0** to the right of the digit **5** in the first number to make the decimal digits the same, then the subtraction operation was carried as you learnt before, subtract hundredths first, tenths next and the whole numbers last.

Note: When we carryout the addition or subtaction operation for the decimals, we first make the decimal digits of the numbers we want to add or subtract the same by putting zeroes to the right of the last decimal digit (because it does not change the value of the mixed number).

Example: **1** **The horizontal way:**

    a $5.7 - 1.4 = 4.3$

            2   9   10

    b $13 - 2.65 = 13.00 - 2.65 = 10.35$

             7   9   9   10

    c $68.005 - 24.25 = 68.005 - 24.250 = 43.755$

2 **The vertical way:**

a	5.7	**b**	13.00	**c**	68.005
	− 1.4		− 2.65		− 24.250
	4.3		10.35		43.755

(b: 2 9 10) (c: 7 9 10)

Drill:

Find the result of the following.

a $2.325 - 0.214 = $ ………

b $89.75 - 5.34 = $ ………

c $0.6 - 0.275 = $ ………

d $12.78 - 3.5 = $ ………

e $312.5 - 157.125 = $ ………

f $(24.235 + 0.065) - (17 + 1.3) = $ ……….

g $512 + 88.35 - 67.035 = $ ………

Third : Dividing a whole number by 10, 100 and 1000

Drill 1:

Complete as the example.

Example: $58 \div 10 = \frac{58}{10} = \frac{8}{10} + \frac{50}{10} = 0.8 + 5 = 5.8$

a $67 \div 10 = \frac{...}{10} = \frac{60}{10} + \frac{...}{10} = 6 + $ …… $= $ ……

b $45 \div 10 = \frac{...}{...} = \frac{40}{...} + \frac{...}{...} = $ …… $+$ …… $= $ ……

28

c $389 \div 10 = \frac{\cdots}{\cdots} = \frac{380}{\cdots} + \frac{\cdots}{\cdots} = 38 + \ldots\ldots = \ldots\ldots$

What do you notice?

When dividing a whole number by 10 the quotient is a number whose digits are the same as the ……… of the whole number after putting the decimal point before the last digit from the right.

Drill 2:

Find the quotient of the following, as the example.

Example: $154 \div 10 = 15.4$

a $78 \div 10 = \ldots\ldots$

b $348 \div 10 = \ldots\ldots$

c $250 \div 10 = \ldots\ldots$

d $7\ 859\ 432 \div 10 = \ldots\ldots$

Drill 3:

Complete as the example.

Example: $289 \div 100 = \frac{200}{100} + \frac{89}{100} = 2 + 0.89 = 2.89$

a $494 \div 100 = \frac{400}{\cdots} + \frac{94}{\cdots} = \ldots\ldots + \ldots\ldots = \ldots\ldots$

b $2\ 857 \div 100 = \frac{2800}{\ldots\ldots} + \frac{\ldots\ldots}{100} = \ldots\ldots + \ldots\ldots = \ldots\ldots$

c $7\ 280 \div 100 = \frac{7200}{\ldots\ldots} + \frac{\ldots\ldots}{\ldots\ldots} = \ldots\ldots + \ldots\ldots = \ldots\ldots$

What do you notice?

When dividing a whole number by …… the quotient is a number whose digits are the same as the ……… of the whole number after putting the …………… before two digits from the right.

Drill 4:

Find the quotient in each of the following, as the example .

Example: 412 ÷ 100 = 4.12 , 780 ÷ 100 = 7.8 (Why?)

a   635 ÷ 100 =   **b**   48 597 ÷ 100

c   2 350 ÷ 100 =   **d**   999 900 ÷ 100

Drill 5:

Complete as the example.

Example: $4257 ÷ 1000 = \frac{4000}{1000} + \frac{257}{1000} = 4 + 0.257 = 4.257$

a $8376 ÷ 1000 = \frac{8000}{......} + \frac{......}{1000} = ... + ... = ...$

b $99\ 875 ÷ 1000 = \frac{99\ 000}{......} + \frac{......}{......} = ... + ... = ...$

c $2\ 575\ 487 ÷ 1000 = \frac{2\ 575\ 000}{......} + \frac{......}{......} = ... + ... = ...$

What do you notice?

When dividing a whole number by 1 000 the quotient is a number whose digits are …………………………………… after putting the …………… before three digits from the ……….

30

Drill 6:

Find the quotient of each of the following, as the example.

Example: $7294 \div 1\ 000 = 7.294$, $4250 \div 1000 = 4.25$

$9800 \div 1000 = 9.8$

a $3598 \div 1000 = $ ....

b $24\ 269 \div 1\ 000 = $ ....

c $3254319 \div 1000 = $ ....

d $785\ 640 \div 1\ 000 = $ ....

Exercise 7

1 Choose the correct answer.

   a $4.7 + 3.07 = $ ...... $(7.14\ ,\ 8.4\ ,\ 7.77)$

   b $137.234 - 37.04 = $ ...... $(133.530\ ,\ 100.194\ ,\ 100.230)$

   c $9\ 870 \div 100 = $ ...... $(98.7\ ,\ 9.87,\ 987)$

   d 540 piasters = ... pounds $(5.4\ ,\ 54\ ,\ 0.54)$

2 Put the suitable sign $<$, $=$ or $>$ in each ☐ .

   a $7.9 + 2.3$ ☐ $11.7 - 1.3$

   b $58.003 - 57.03$ ☐ $1 + 0.973$

   c $99.89 - 90.09$ ☐ $10 - 1.01$

   d $520.46 + 0.73$ ☐ $520 + 1.19$

3 Find the result.

a	**b**	**c**	**d**
74.28	289.007	3218.975	666.66
+ 25.72	+ 14.43	− 218.853	− 549.958
....	....	....	....

e 12.7 + 10.007 + 3.07 = ...

f (520.46 − 2.731) − (498.7 − 98.58) = ...

g 83.57 − 14.451) + (218.6 − 100.58) = ...

h (23456 ÷ 10) + (23456 ÷ 100) = ...

4 Complete.

a 47.85 + ... = 100

b ...... + 54.8 = 77.59

c 33.3 − ...... = 12.008

d ...... − 41.41 = 3.8

5 Complete.

a
```
    9 7 . 4 8
  +   4 3 . ☐☐
  ───────────
    ☐☐☐ . 9 3
```

b
```
    8 3 . 5 7
  − ☐☐ . 7 3 4
  ───────────
    2 4 . ☐☐☐
```

c
```
  1 1 3 . 5 7 ☐
  −   1 3 . ☐☐8
  ─────────────
    ☐☐☐ . 1 7 ☐
```

d
```
  2 9 9 . ☐☐☐
  −   ☐☐ . 4 5 7
  ─────────────
  2 4 3 . ☐3 ☐
```

6 Mazen has 35 pounds. He bought a ball for LE 9.75, and a book for PT 840. How much money were left?

7 Hanaa has 200 pounds. She wants to buy a shoe for LE 99.8, a bag for LE 45.75 and a dress for LE 70.25. Can she buy all what she wants? Why?

8 A man bought three metres of cloth to make two shirts, one for him and another for his son. If you know that one metre and three quarters of a metre of cloth are needed for the man's shirt and one metre and half a metre for the son's shirt, answer the following questions.

a Is what the man bought enough to make the two shirts or will he need another piece of cloth?

b If he will need to another piece of cloth, how much cloth will he need to buy?

First Approximating to the Nearest Ten

Introduction

Sometimes it is necessary to know numbers accurately, as in the accurate measurements in laboratories, financial records ... etc. But, in some other cases we do not need to know the numbers accurately, it is sufficient to get approximated numbers.

Example:
- If the population of a small village is 72 105, then we say it is approximately 72 000.
- If the distance between two cities is 197 km then we say it is approximately 200 km.

Now, we are going to study the rules of approximating numbers

Example 1: Approximate the number 457 to the nearst ten.
Follow the following steps.

1 We know that the number 457 is included between 450 and 460 (that is between 45 tens and 46 tens).

2 Determine the position of the number between 450 and 460.

We find that the number is nearer to 460 than to 450.

3 So, we say that 457 approximately equals 460 to the nearst ten and is written as $457 \simeq 460$ to the nearst ten.

Rule "opproximate to the nearest ten" to opproximate to nearest ten. do as follows

    1) Replace the units digit by zero

    2) If the units digit ≥ 5 add one to the tens digit

    3) If the units digit < 5 Keep the tens digit with its value

For exmple $1832 \simeq 1830$; $3267 \simeq 3270$

$$\downarrow \qquad\qquad\qquad \downarrow$$
$$< 5 \qquad\qquad\qquad \geq 5$$

Drill 1:

    approximate each of the following to nearest ten

a) 236	**b)** 7651	**c)** 86029
d) 9004	**e)** 21395	**f)** 9999

Second: Approximating to the nearest hundred or nearest thousand.

Example 1: Approximate the number 9382 to the nearest hundred

Solution : The number 9382 is included between 9300 and 9400
        (i.e between 93 hundred and 94 hundred)

9382

9300   middle   9400
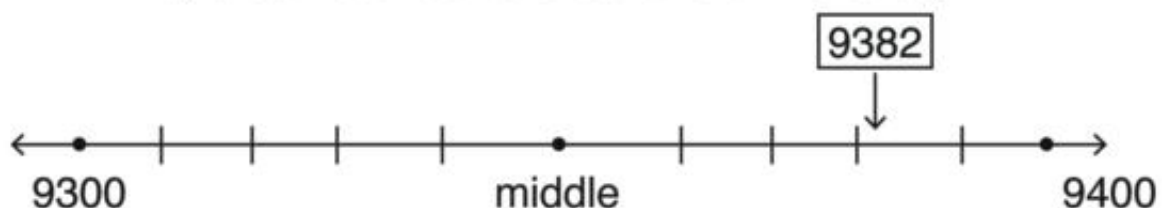
it is nearer to 9400 than 9300
then $9382 \simeq 9400$ to the nearest hundred.

Rule : To approximate to the nearest humdred do as follows

1) Replace unit, hunderd digits with two zeroes

2) If the tens digit $\geq$ 5 add one to hundreds digit

3) If the tens digit < 5 keep the hundreds digit with its value.

For. Example 2654 $\simeq$ 2700 , 2327 $\simeq$ 2300

$$\downarrow \qquad\qquad\qquad \downarrow$$
$$\geq 5 \qquad\qquad\qquad < 5$$

Drill 2:

Approximate each of the following to nearest hundred:

a) 53824   b) 372051   c) 603499

d) 89950   e) 973049   f) 990909

Rule : To approximate to the nearest thousand do as follows

1) Replace every units digit; tens digits and hundreds digit by three zeros

2) If the hundreds digit $\geq$ 5 add one to thousands digit

3) If the hundreds digit < 5 keep the digit with its value.

For example   2654 $\simeq$ 3000

$$\downarrow$$
$$\geq 5$$

2327 $\simeq$ 2000

$$\downarrow$$
$$< 5$$

Drill 3:

Approximate each of the following to the nearest thousand

a) 786296   b) 6435.5   c) 4321.99

d) 519900   e) 75049.9   f) 999500

Drill 4:

A Approximate each of the following numbers to the nearest ten thousand.

a   65 432.1   b   15 387   c   10 500
d   13 950.5   e   8 943.52   f   236 849.99

B Approximate each of the following numbers to the nearest hundred thousand.

a   87 654 321   b   1 234 578.9   c   4995007
d   61 950 000   e   650 049.76   f   5614765.3

Third Approximating to the Nearest Unit

We know that, there are many non-whole numbers as: 8.75, 53.07, $92\frac{3}{4}$, ... When approximating any of these non-whole numbers to the nearest unit, then the resulted number will be a whole number.

For example: For approximating the number 53.8 to the nearest unit, we notice that , this number is included between the two whole numbers 53 and 54 and is nearer to 54 than 53 as shown on the number line.

Then, $53.8 \simeq 54$ to the nearest unit.

Rule for approximating to the nearest unit

From studying the previous example, deduce a rule for approximating to the nearest unit. Then, complete.

When approximating to the nearest unit, we notice the .... digit.
- If this digit is less than ......, take off the fraction and keep .... as it is.
- If this digit equals ...... or greater than ...... take off the fraction and increase ....

Note: Sometimes we say approximating to the nearest whole number instead of approximating to the nearest unit.

Example 1: Approximate the number 173.2 to the nearest unit.

Solution: The tenths digit is 2, which is less than 5.

Then, $173.2 \simeq 173$ to the nearest unit

Example 2: Approximate the number 64.69 to the nearest unit.

Complete the solution:

The tenths digit is ……, which is ……… than 5.

Then, $64.69 \simeq$ ……… to the nearest unit.

Exmaple 3: Approximate the number 402.501 to the nearest whole number.

Complete the solution:

The tenths digit is ……… 5.

Then, $402.501 \simeq$ ……… to the nearest whole number.

Example 4: Approximate the number $657\frac{4}{5}$ to the nearest whole number.

Solution: We know that $\frac{4}{5} = \frac{8}{10} = 0.8$, then $657\frac{4}{5} = 657.8$

The tenhs digit is 8 which is greater than 5.

Then, $657\frac{4}{5} \simeq 658$ to the nearest whole number.

Drill 5:

Approximate each of the following numbers to the nearest whole number.

a 10.1

b 53.5

c 624.09

d 7.499

e 600.601

f 253.398

g $135\frac{7}{10}$

h $204\frac{3}{5}$

i $967\frac{1}{4}$

Fourth Approximating to the Nearest Tenth

Example 1: Approximate the number 164.37 to the nearest tenth.

Solution: The number 164.37 is included between 164.3 and 164.4 which is nearer to the number 164.4 than the number 164.3.

Then, 164.37 ≃ 164.4 to the nearest tenth.

Rule for approximating to the nearest tenth

Deduce a rule for approximation and complete to the nearest tenth. When approximating to the nearest tenth, look at the .... digit.

- If this number is less than ......, then the .... digit becomes zero and keep the other digits as they are.

- If this number equals ...... or greater than ......, then the .... digit becomes zero and increase the .... digit by 1.

Example 2: Approximate the number 67.29 to the nearest tenth

Soluton: The hundredths digit is .... which is greater than ....
then 67.29 ≃ 67.3 to the nearest tenth.

Drill 6:

Approximate each of the following numbers to the nearest 1 decimal place

a 13.57	**b** 296.04	**c** 83.914
d 90.092	**e** 43.95	**f** 170.597
g $502\frac{37}{100}$	**h** $449\frac{3}{4}$	**i** $6\ 399\frac{7}{50}$

Exercise 8

1 Find the result of each of the following operations, then approximate the result to the nearest ten.

a 25 304 + 9 467   **b** 36 523 + 36 582

c 46 257 – 15 391   **d** 700 000 – 65 093

2 **a** What is the greatest whole number that if approximated to the nearest ten thousand gives a result of 750?

b What is the greatest whole number that if approximated to the nearest ten gives a result of 8000?

c What is the smallest whole number that if approximated to the nearest ten gives a result of 9420?

3 Complete the following table with suitable numbers.

No.	The number	Approximated to the nearest 100	Approximated to the nearest 1000
a	6 543 217	....	....
b	80 451.8	....	....
c	2 395.98	....	....
d	....	694 500	....
e	....	409 900	....
f	....	....	654 000

4 Carry out the following operations, then approximate the result to the nearest hundred.

a 93 608.2 + 18 905 = ... ≃ .... to the nearest hundred

b 893.44 + 987.56 = ... ≃ .... to the nearest hundred

c 5 436.5 – 160.9 = ... ≃ .... to the nearest hundred

d 60 000 – 48.5 = ... ≃ .... to the nearest hundred

5

a What is the greatest whole number that if approximated to the nearest ten thousand gives a result of 20 000?

b What is the smallest whole number that if approximated to the nearest hundred thousand gives a result of 1 700 000?

c What is the greatest different digits whole number that if approximated to the nearest hundred thousand gives a result of 98 500 000?

d What is the smallest different digits whole number that if approximated to the nearest ten thousand gives a result of 21 060 000?

6 Notice the position of each of the following numbers on the number line, then complete.

a

28.3

```
28                    middle                    29
```

28.3 ≃ .... to the nearest unit

b

637.6

```
637                   middle                    638
```

637.6 ≃ .... to the nearest unit

c

51.85

```
51                    middle                    52
```
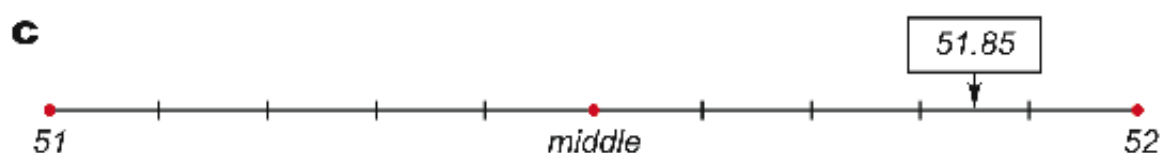
51.85 ≃ .... to the nearest whole number

d

140.5

```
140                   middle                    141
```
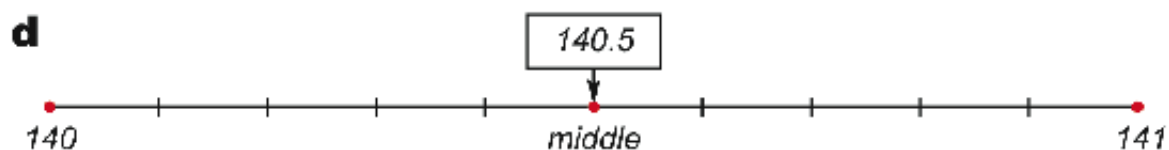
140.5 ≃ .... to the nearest unit

7 Find the result for each of the following operations, then approximate the result to the nearest whole number.

    a $75 + 64.3 =$ .... $\simeq$ .... to the nearest unit.

    b $362.6 - 29.1 =$ .... $\simeq$ .... to the nearest unit.

    c $53.64 + 8.601 =$ .... $\simeq$ .... to the nearest unit.

    d $104.9 - 23.58 =$ .... $\simeq$ .... to the nearest unit.

8 Determine the position of each of the followng numbers on the number line, then complete.

    a   134.29

134.2   middle   ....

    $134.29 \simeq$ .... to the nearest tenth

    b   70.07

....   middle   ....

    $70.07 \simeq$ .... to the nearest 1 decimal place

9 Find the result of each of the following operations, then approximate the result to the required approximation degree.

    a $14.352 + 25.687 =$ .... $\simeq$ .... to the nearest tenth.

    b $253.607 - 114.98 =$ .... $\simeq$ .... to the nearest unit.

    c $864.3 + 75.2 =$ .... $\simeq$ .... to the nearest ten.

    d $453.64 - 72.317 =$ .... $\simeq$ .... to the nearest 1 decimal place.

    e $45.6 + 83.7 =$ .... $\simeq$ .... to the nearest unit.

10 Complete the following table with suitable numbers.

The number	The number approximated to the nearest:					
	ten thousands	thousands	hundreds	tens	units	tenths
57 346.83	....	....	....	....	....	....
630 080.55	....	....	....	....	....	....
28 009.19	....	....	....	....	....	....
....	....	....	....	....	....	45 832.6
....	....	....	....	....	50 381	....

11 Without carrying out the approximation operations, discover directly the mistake in each of the following approximation results giving the reason.

a $6\ 273.51 \simeq 6\ 270$ to the nearest hundred.
(wrong because ....)

b $2\ 000.08 \simeq 20\ 000$ to the nearest whole number.
(wrong because ....)

c $2\ 222 + 3\ 333 \simeq 5\ 550$ to the nearest ten.
(wrong because ....)

d $999.9 - 555.5 \simeq 440$ to the nearest hundred.
(wrong because ....)

12 Write each of the required numbers using all the digits 2, 3, 5, 8 and a decimal point to satisfy the following equalities.

Example: $82.35 \simeq 82$ to the nearest whole number.

a .... $\simeq 20$ to the nearest ten.
b .... $\simeq 83.3$ to the nearest tenth.
c .... $\simeq 8\ 000$ to the nearest thousand.
d .... $\simeq 9\ 000$ to the nearest thousand.
e .... $\simeq 28.4$ to the nearest tenth .

Unit 1 Activities

Activity 1
Discover the rule and complete with suitable numbers
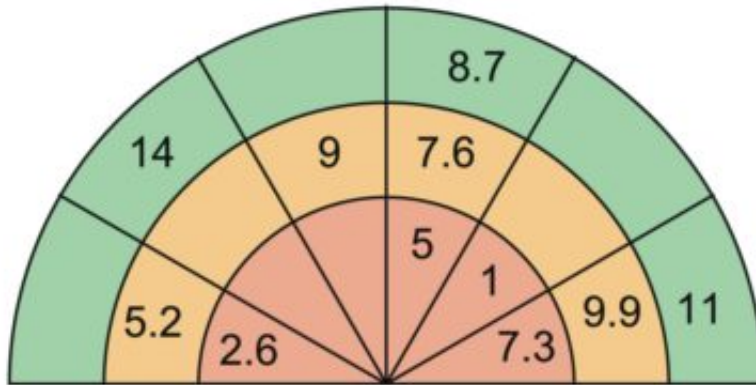
Activity 2
a Find two numbers, each of which is formed from 4 digits and a decimal point, where their sum is 100 and the difference between them is 11.5.

b How many numbers each of which is formed from 3 digits and a decimal point, lie between 1 and 1.5?

c Find two numbers such that their sum is 8.2 and their product is 16.

d Find a number which lies between 50 and 100 and formed from 4 digits and a decimal point, such that it satisfies all the following conditions:
- Its tens digit is double its hundredths digit.
- Its units digit is three times its hundredths digit.
- Its tenths digit is one third its tens digit.

Activity 3
Put the decimal points in their suitable places in each of the following to make the statement true.

a $9\ 347 + 6\ 529 = 99\ 999$ **b** $483 + 725 = 5\ 555$

c $95\ 087 - 1731 = 77\ 777$ **d** $456 - 34\ 489 = 11\ 111$

45

Activity 4

The greatest and the smallest number

a find the greatest whole number that if approximated to the nearest thousand give a result 6 000.

b find the smallest whole number that if approximated to the nearest hundred give a result 400.

c Find the greatest whole number, the sum of its digits is 21 and if approximated to the nearest hundred give a result 3 700.

d Find the smallest whole number, the sum of its digits is 36 and if approximated to the nearest hundred thousand give a result of 2 900 000.

Activity 5

The same resulted approximation

a Find two numbers, the difference between them in 900 and have the same result if approximated to the nearest 1 000.

b Find two numbers, the difference between them in 9 900 and have the same result if approximated to the nearest 10 000.

c Find the greatest possible difference between two whole numbers such that they have the same result if approximated to the nearest: ten, hundred, thousand, ten thousand or hundred thousand.

Activity 6

Complete with suitable digits.

a 2☐43☐ + 40☐58 ≃ ☐3 000 to the nearest thousand.

b 1☐20☐ + 293☐4 ≃ ☐6 600 to the nearest hundred.

c 7☐0.6☐ + 26☐.☐☐ ≃ ☐☐44.8 to the nearest tenth.

d 40☐6.5 + ☐360.☐ ≃ 6 400 to the nearest ten.

General Exercises on Unit 1

1 Choose the corect answer.

a $7\frac{3}{5} =$ ....   (7.6 , 7.3 , 7.5)

b $\frac{23}{2} =$ ....   (11.5 , 11.2 , 11.02)

c $\frac{9}{4} =$ ....   (2.5 , 2.25 , 2.75)

d $\frac{3}{10} =$ ....   ($\frac{300}{1000}$, 0.03 , 0.003)

e $7\frac{9}{100} =$ ....   (7.9 , 7.09 , 7.009)

f $\frac{64}{80} =$ ....   (0.8 , 0.08 , 0.008)

g $35.40 =$ ....   ($\frac{354}{10}$, $\frac{354}{100}$, $\frac{354}{1000}$)

H $274.35 =$ ....   ($\frac{27\,435}{10}$, $\frac{27\,435}{100}$, $\frac{27\,435}{1000}$)

2 a Represent each of the following on the number line:
7.2 , 8.7 , 9.4 , 9.9

b Write the value of the underlined digit in each of the following decimals:

54.2$\underline{3}$8 , 17.9$\underline{5}$, 0.743 , 8$\underline{9}$.24 , $\underline{3}$5.247

3 a Complate with a suitable digit in each ☐.
$812.297 = 812 + 0.\square + 0.\square\square + 0.\square\square\square$

b Find the result for each of the following
   i $7.98 + 12.237 =$ ....   ii $24.013 - 4.97$

4 Hossam has PT 425 and his sister Hend has PT 975 piasters. Find the difference between what they have in pounds.

5 Complete the following table.

The number	The number approximated to the nearest:			
	hundreds	tens	units	tenths
567.435	....	....	....	....
2 447.612	....	....	....	....
....	....	....	707	....
....	....	....	....	999-99

6 Join each number from(a)to its approximated value in(b,)then to the degree of approximation in(c.)

(**a**) 76 541   89.425   256.723   7 800.05

(**b**) 89.4   77 000   7 800.1   257

(**c**) to the nearest tenth   to the nearest thousand   to the nearest whole number

7 If the distance between two cities is 4 625 metres, approximate this distance to the nearest kilometre.

8 Notice the following table which represents the time spent by a primary 4 pupil in his daily activities, then answer.

| Activity	studying	playing	watching TV
Time in minutes	125	45	30

a What is the time elapsed by the pupil in studying approximated to the nearest hour?

b What is the time elapsed by the pupil in the three activies approximated to the nearest hour?
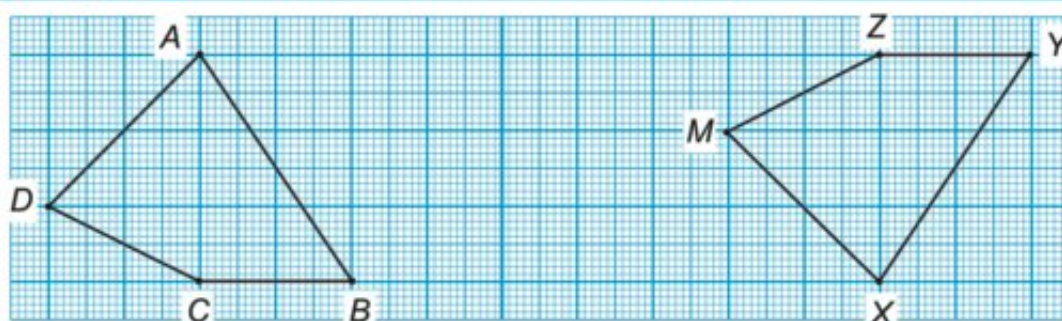
Unit Two

Geometry

- Congruency
- Symmetrical Figures and Lines of symmetry
- Visual Patterns
- Unit 2 Activities
- General Exercises of Unit 2
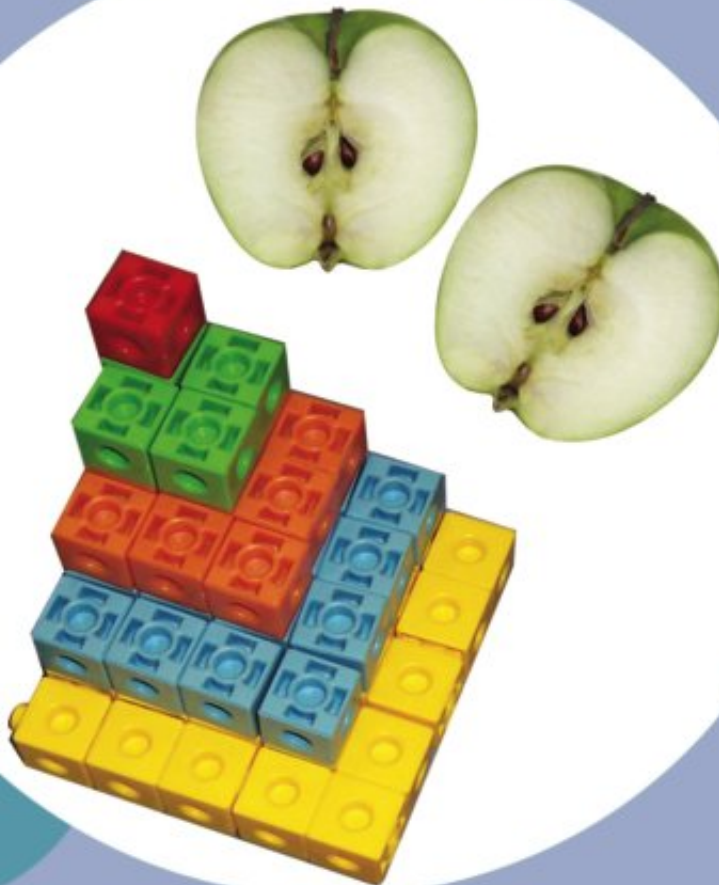
Congruency

How do you verify the congruency of two figures practically?

Drill 1:

If you wish to verify practically the congruency of the two figures ABCD and XYZM, then follow the following steps:

a Get a sheet of tracing paper and copy the figure ABCD on it.

b Flip the tracing paper on the figure XYZM and move it till you get the two figures identically on each other, such that you can see only one figure, then you become sure that the two figures are congruent. i.e. A on X, B on Y, C on ... and D on ...
Also, $\overline{AB} = \overline{XY}$, $\overline{BC} = \overline{YZ}$, $\overline{CD} = $ ...... and $\overline{DA} = $ ...... (the symbol $\equiv$ is read as **is congruent to**).
As well, $\angle A \equiv \angle X$, $\angle B \equiv \angle$..., $\angle C \equiv$ ...... and $\angle D \equiv$ ......

> **Generally**:
>   Two polygons are congruent if:
>   **1** their corresponding sides are equal in length.
>   **2** their corresponding angles are equal in measure.

Drill 2:
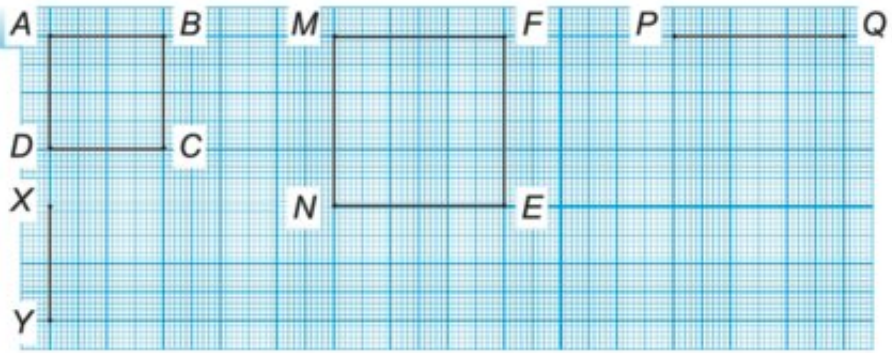
a Draw the square XYZL such that it is congruent to the square ABCD.

b Draw the square PQRS such that it is congruent to the square MNEF.

c What are the conditions for two squares to be congruent?
Two squares are congruent if the side length of one of them equals ....

Drill 3:
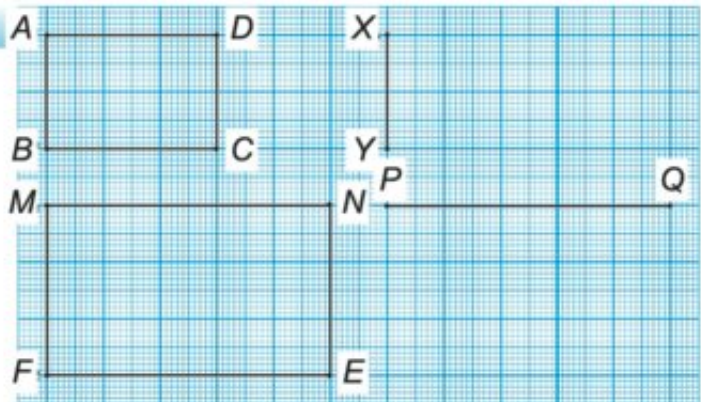
a Draw the rectangle XYZL such that it is congruent to the rectangle ABCD.

b Draw the rectangle PQRS such that it is congruent to the rectangle MNEF.

c What are the conditions for two rectangles to be congruent?
Two rectangles are congruent if the length of one of them equals the length of the other and the width of one of them equals ....
In other words if the two dimensions of one of them equals ....

Drill 4:

Question: Is equality of the corresponding sides of two figures enough to be congruent?
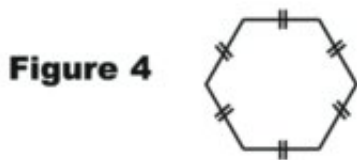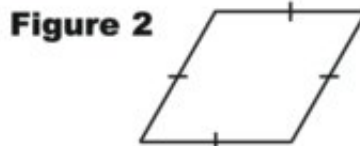
For the answer, we perform the following drill.

Figure 1

Figure 2

Figure 3

Figure 4
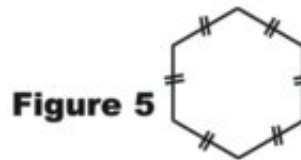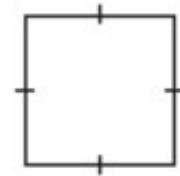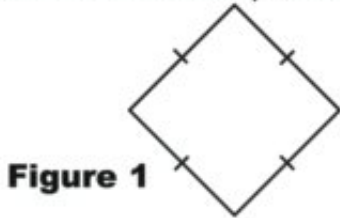
Figure 5

Figure 6

1. Verify by measuring that the side lengths of figures 1, 2 and 3 are all equal, and the side lengths of figures 4, 5 and 6 are also all equal.

2. Use tracing paper to know the congruent figures from the six figures.

3. Find the two congruent figures from the first 3 figures.
   Figure ...... and figure ......

4. Find the two congruent figures from the other 3 figures.
   Figure ...... and figure ......

5. Find two non-congruent figures from the first 3 figures.
   Figure ...... and figure ......

6. Name two non-congruent figures from the other 3 figures.
   Figure ...... and figure ......

7. What is the relation between the measures of the angles of the congruent figures?

8. What is the relation between the measures of the angles of the non-congruent figures?

From the above, we find that equality of the corresponding sides of two figures is not enough to get congruent figures, but it is needed in addition to equality of the corresponding angles.

Special case:
Equality of corresponding sides of two triangles, is enough to be congruent triangles. This is because the equality of the corresponding sides of two triangles leads to equality of their corresponding angles.

Exercise 1

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

    a A scalene triangle can be congruent with an isosceles triangle.   ( )

    b A square of side length 7 cm can be congruent with a rectangle of dimensions 7 cm and 5 cm.   ( )

    c Two right-angled triangles are congruent if the two right sides in the first triangle equal the two right sides in the other.   ( )

2 Join each figure in group **a** to the congruent figure from group **b**.

    a

    b
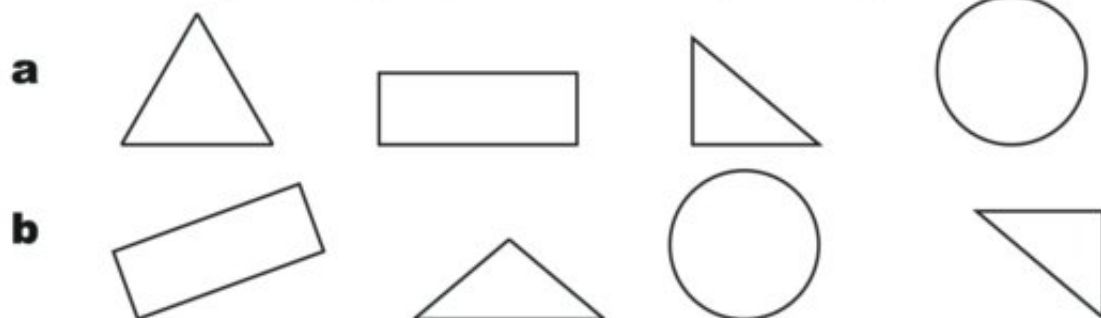
3 Draw a line in each of the following figures, to get two congruent figures if possible.
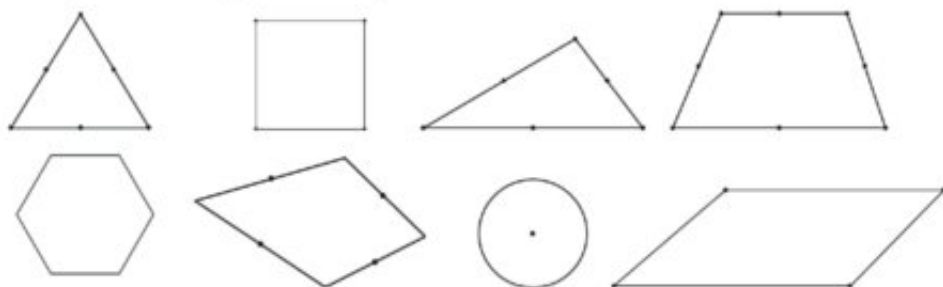
Symmetrical Figures and Lines of Symmetry

Definition : line of symetry

$\overleftrightarrow{XY}$ represents a line of symmetry for the figure ABCD. If ABCD is folded around $\overleftrightarrow{XY}$, such that the right part congruent with the left part, in this case the figure ABCD is a symmetrical figure a round this line.

Folding line
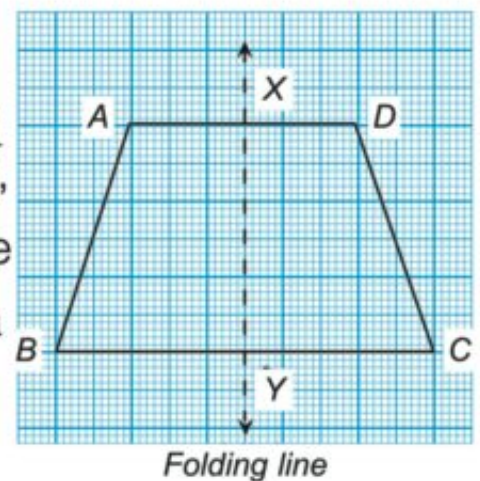
Drill 1:

a Determine the symmetrical figures of the following and draw one line of symmetry for each of them.

Figure 1   Figure 2   Figure 3   Figure 4   Figure 5

Figure 6   Figure 7   Figure 8   Figure 9

b Is there more than one line of symmetry for some of these shapes? ....

c If your answer is yes name these figures, then draw those lines.
....

d Are there any of the above figures with no line of symmetry? .... If your answer is yes, determine them.

> From the above, some geometrical figures have one or more lines of symmetry (**symmetrical figures**) and some other geometrical figures have no line of symmetry (**non-symmetrical figures**).

Drill 2:

Let $\overleftrightarrow{AC}$ be a folding line. Notice the parallelogram ABCD when folded, then answer.

a Is B congruent to C? ....
b Is △ABC congruent to △ADC? ....
c Is $\overleftrightarrow{AC}$ a line of symmetry for the figure ABCD? ....
d Is ABC congruent to ADC? Why?
....

Folding line
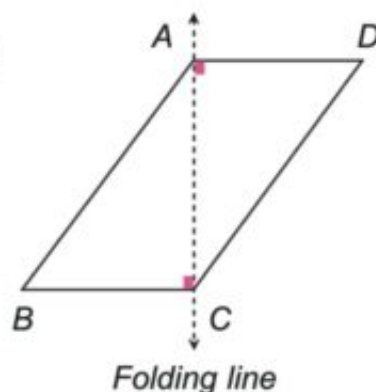
> From the above, we can say that if there is a line which divides a figure into two congruent parts, it is not a must to be a line of symmetry of this figure.

Drill 3:

Notice the figure opposite, then complete.

a The figure ABCD is a rhombus of side length approximately equals ......

b Draw $\overleftrightarrow{BD}$. Is $\overleftrightarrow{BD}$ a line of symmetry for the figure ABCD? Why?
(Colour one of the two symmetric parts)

55
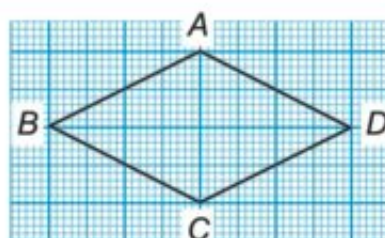
c Check that $\overleftrightarrow{AC}$ is another line of symmetry for the figure ABCD. Colour one of the two symmetrical parts using another colour than the one you used in **b**.

From the above, the rhombus has ……………… of symmetry.

Drill 4:

Notice the two drawn figures, then answer.

Figure 1

a Complete.
Each of figures **1** and **2** is called a trapezium but figure **1** is an isosceles trapezium and figure **2** is ……………… trapezium.
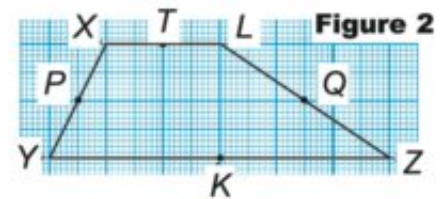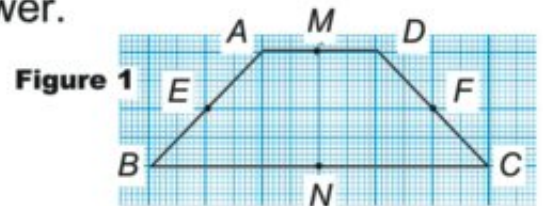
Figure 2

b In figure 1:

i is $\overleftrightarrow{MN}$ a line of symmetry for figure **1**? Why? ………………

ii is $\overleftrightarrow{HW}$ a line of symmetry for figure **1**? Why? ………………

iii is $\overleftrightarrow{AC}$ a line of symmetry for figure **1**? Why? ………………

iv is $\overleftrightarrow{BD}$ a line of symmetry for figure **1**? Why ? ………………

From the above, an isosceles trapezium has ……………… line of symmetry, which is the straight line passing through the mid-points of its bases.

Question:

1 Is the line of symmetry of an isosceles trapezium perpendicular to its bases? ……………………… (verify by measuring)

2 In figure 1, is figure AMNB congruent to figure DMNC? Why?

…………………………………………………………………………

c Copy figure **2** on tracing paper. Verfiy, by folding, that there is no line of symmetry for the non-isosceles trapezium.

Exercise 2

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a The parallelogram has four lines of symmetry.   (   )

b The rectangle has four lines of symmetry.   (   )

c The scalene triangle has three lines of symmetry.   (   )

d The isosceles trapezium has one line of symmetry.   (   )

e The square has four lines of symmetry.   (   )

f The rhombus has four lines of symmetry.   (   )

2 In the figure opposite, ABCD is a square with mid-points of its sides X, Y, Z and N. Notice the figure, then answer the following questions.
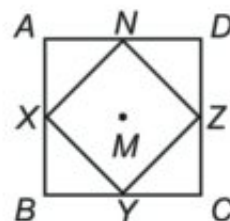
a Draw a common line of symmetry for the two squares.

b How many common lines of symmetry are there for the two figures?   (2 , 4 or 6)

3 Join each figure to its number of lines of symmetry.

Zero

1

2

3

4

5

Visual Patterns

Question: What is a pattern?

A pattern is a sequence of numbers, symbols or figures arranged according to a certain system or rule.

Examples:

1 1, 5, 9, 13, … etc. (the pattern sequence is that every number increases by 4 that the previous one).

2 X Y Z X Y Z X Y Z, … etc. (the pattern sequence is repeating X Y Z).

3 + + − + + − +, … etc. (the pattern sequence is repeating + + −).

4 □□△□□△□, … etc. (the pattern sequence is repeating □□△).

Drill 1:

Discover the pattern, then complete:

1 ABCABCABC ....   (the pattern sequence is ....)
2 △▽△▽△▽ ....   (the pattern sequence is ....)
3 □▥▥▥▥ □▥▥▥▥ ....   (the pattern sequence is ....)
4 100, 90, 80, …, …, …   (the pattern sequence is ....)

Drill 2:

In each of the following figures, discover the pattern, then complete by drawing one figure that follows the same pattern.
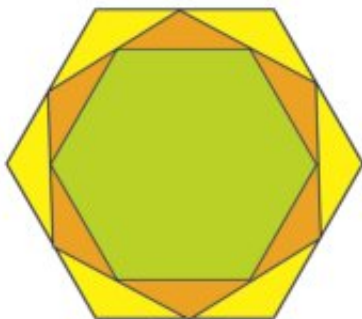
Exercise 3

1 Discover the rule or pattern, then complete.

a ▤▢▤▥▤▢

b ○◭△○◭△○◭△

c 13.2 , 13.4 , 13.6, ... , ... , ... , ...

d 10 , 9.6 , 9.2 , ... , ... , ...

e AB , ABB , ABBB , AB , ABB , ... , ... , ...

2 Discover the pattern, then draw two figures and complete colouring according to the pattern.
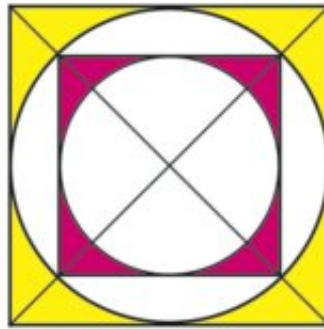
3 Form four patterns of your own.

a ....

b ....

c ....

d ....

Unit 2 Activities

Below is a figure drawn in the two dimensional coordinate plane.

a 1 O = (0, 0),
A = (1, ...), X = (..., ...),
N = (..., ...), M = (..., ...),
K = (..., ...), Z = (..., ...)
and C = (..., ...).
Notice that the points O,
A, X, N, ..., ..., ... and ...
lie on one straight line
which is the line of
symmetry for the figures:
squares ABCD, ...,
........., and the circle M.
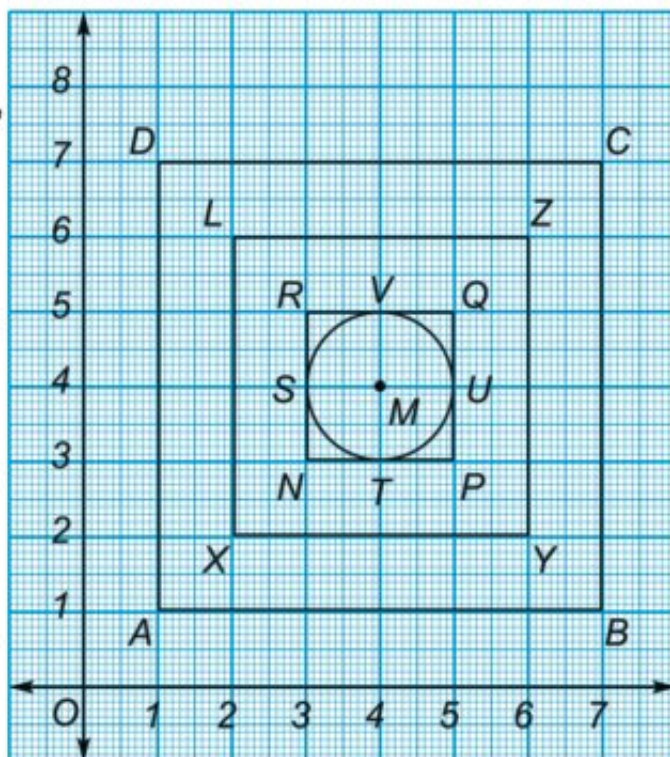
2 B = (..., ...), Y = (..., ...),
H = (..., ...), M =(..., ...),
U = (..., ...), L = (..., ...),
and D = (..., ...).
What do you notice? ....

b Is there a line of symmetry for one of the three squares that is not a line of symmetry for the circle? ....

c Is there a line of symmetry for the circle that is not a line of symmetry for the three squares? .... draw it.

d Write the four figures in descending order, once according to their perimeters, and another according to their areas.

e If that figure, consisting of the four figures, represents a carpet design, use suitable colours to get the most beautiful carpet design from your point of view.

f Write the largest possible number of parallel lines.

g Write the greatest possible number of perpendicular lines.

h Ask your teacher to help you in drawing this figure or any other, using Power Point or Paint program in the multimedia room in your school.

General Exercises on Unit 2

1 Complete.

   a A diagonal of the rectangle divides it into two ....
triangles, but it is not .... for the rectangle .

   b Two squares are congruent if ....

   c △△○△△○△△○ ....

   d + × + × × + × × × + × ....

2 Join each of the following figures to the suitable name and to
the suitable number of lines of symmetry:

Name	Figure	Number of lines of symmetry
Rhombus		very large number
Trapezium		4
Parallelogram		3
Circle		2
Rectangle		1
Square		zero

3 In eafch ot sthe gfollowing Complete the figure to be
symmetrical about the given line:
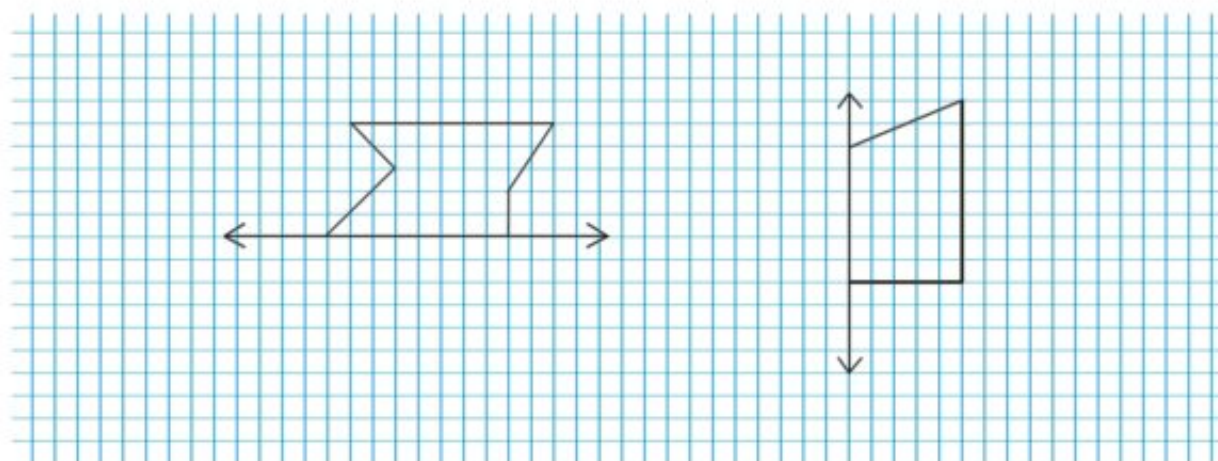
Unit Three

Measurement

- The Capacity
- The Welght
- The Time
- Activities of unit 3
- General Exercises on unit 3

The Capacity

Measuring the capacity

Preface

We deal a lot in life situations with **capacity**. For example, this is a bottle of capacity 1 litre, and this is another of capacity 2 litres, a that is a third of capacity 250 millilitres and this is an ampoule of capacity 2 millilitres that a doctor orders for a patient, ... etc.

So, what is a litre and what is a millilitre?
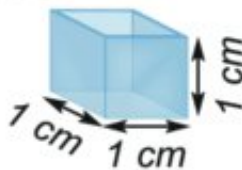
The **millilitre** is the capacity of a cube-shaped container of side length 1 cm.
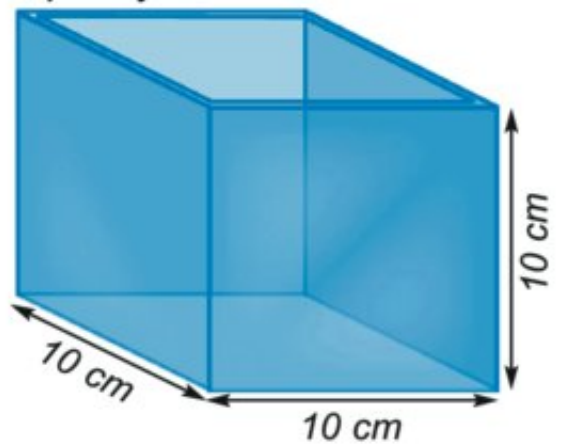
The **litre** is the capacity of a cube-shaped container of side length 10 cm.

Question: What is the relation between a litre and a millilitre?

$$1 \text{ litre} = 1000 \text{ millilitre}$$

Question: Which is smaller a litre or a millilitre?

1 litre = 1 decimetre³, 1 millilitre = 1 cm³

Notice: The **cubic decimetre** is symbolized as **1 dm³**
The **cubic centimetre** is symbolized as **1 cm³**

Drill 1:
Write the suitable measuring unit for each of the following.

a A dose of medicine written by a doctor for a patient. ....

b The amount of juice in a family size can. ....

c The amount of water used by a person in bathing. ....

d The amount of water for melting a powder medicine. ....

e The amount of water filling a glass. ....

f The amount of water filling a mineral water bottle. ....

Drill 2:
Choose the answer nearest to the correct from between brackets.

a Eman bought a bottle of medicine of capacity ....
($\frac{1}{5}$ litre , 2 litres , 1 000 millilitres)

b I used about .... of water in bathing today.
(50 litres , $\frac{1}{2}$ litre , 10 litres)

c We have a water tank of capacity ....
(200 millilitres , 50 litres , 3 000 millilitres)

d When I was sick, I got an injection from an ampoule of ....
(1 millilitre , $\frac{1}{2}$ litre , 10 millilitres)

Drill 3:

Complete:

a 2 litres = …… millilitres

b 7.75 litres = …… millilitres

c 4.275 litres = …… millilitres

d 3000 millilitres = …… litres

e 8500 millilitres = …… litres

f 9750 millilitres = …… litres

Litre	× 1000 → ÷ ……… ←	………

Drill 4:

Join each picture to the suitable capacity, then write the names in an ascending order:

Water heater   Bottle of mineral water   Bucket of water   Syringe   Bottle of medicine

10 litres   30 millilitres   2000 millilitres   30 litres   3 millilitres

The ascending order is ………… , ………… , ………… , …………

, …………

Exercise 1

1 Complete.

   a 20 litres = ... millilitres   **b** 7000 millilitres = ... litres

   c 7 litres = ... millilitres   **d** 20 millilitres = ... litre

2 Put the suitable sign >, < or = in each ☐ .

   a $\frac{1}{4}$ litre ☐ 245 millilitres   **b** 2 litres ☐ 2750 millilitres

   c 1 litre ☐ 150 millilitres   **d** 500 millilitres ☐ $\frac{1}{3}$ litre

   e 750 millilitres ☐ $\frac{3}{4}$ litre   **f** 3000 millilitres ☐ 30 litres

3 Choose the answer nearest to the correct from between brackets.

   a What is the capacity of a glass of water?

                     (3 lires , 25 millilitres , 250 millilitres)

   b The average water consumption for a person is ....

                     (15 litres , 1500 litres , 1500 millilitres)

   c The amount of milk used by a family of four persons is ...

                     (500 litres , 2000 millilitres , 50 litres)

4 Arrange the following quantities in descending order.

   8.75 litres , 9000 millilitres , 5 litres , 6500 millilitres

Measuring the weight
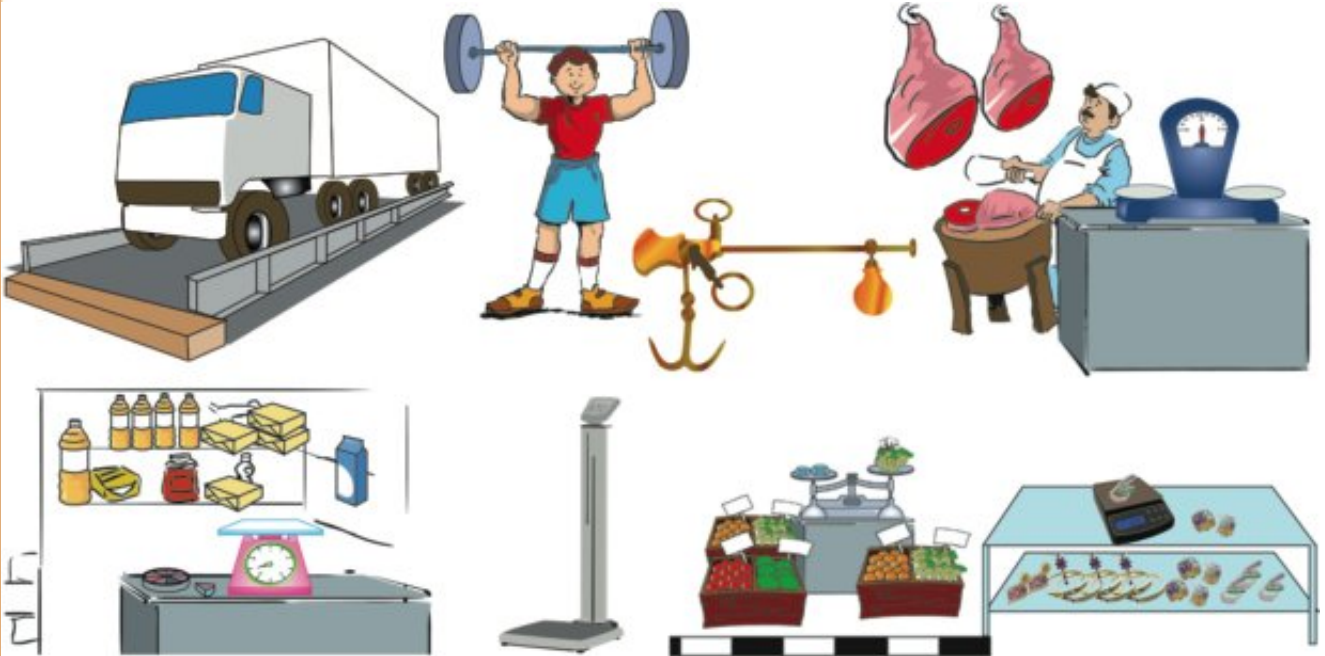
Preface

We deal a lot with weights in our daily life. The doctor usually weighs the baby every visit. (why?) When the father or mother buys things for home, (rice, sugar, meat, … etc, he/she deals with weight … etc. What are the units of measuring weight?

You studied before, the gram and the kilogram and knew that

1 kilogram = 1000 grams

In this lesson you will add to your information a new unit of measuring weight, the ton.

1 ton = 1000 kilograms

Question: How many grams are there in a ton?

1 ton = 1000 kilograms = 1000 × 1000 grams = ... grams
i.e. 1 ton = 1 million grams

Drill 1:
Arrange the following units ascendingly , then arrange them descendingly: Kilogram , Gram , Ton

Drill 2:
Complete.
a 3 kgm = ... gm   **b** 7500 gm = ... kgm
c 2 ton = ... kgm   **d** 4750 kgm = ... ton
e 5 ton = ... kgm = ... gm
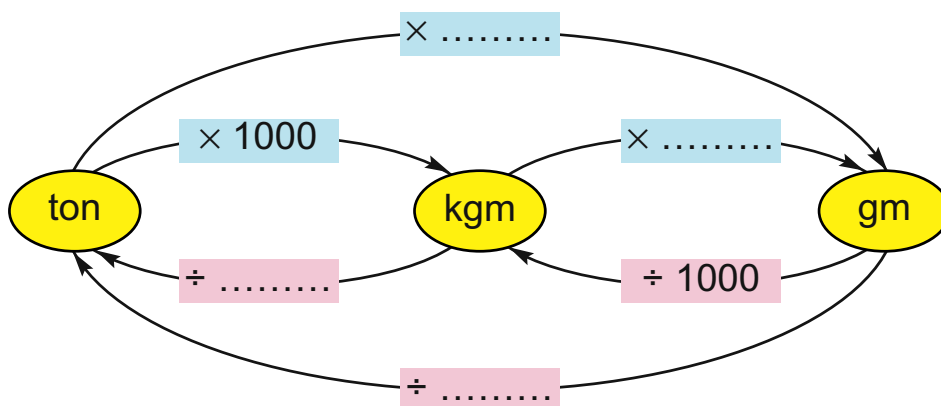
Drill 3:
Choose the suitable answer from between the brackets.
a Hanan bought a golden bracelet of weight ....
                              (2 ton , 10 gram , 2 kgm)
b The weight of my shoulder-bag of books that I carry daily to school is ....   (3 ton – 3 gram – 3 kgm)
c A truck can be loaded with ....
                    (2 ton , 20 kilogram , 3500 gram)
d My father weighs ....   (one ton , 95 kilogram , 80 gram)

Drill 4:

Choose the suitable unit of weight.

a   Measuring (deciding) weights in weight lifting sport ………

(ton , gram , kilogram)

b   Buying a present from a jewellery shop ………

(ton , gm , kgm)

c   Buying fruits from a fruit- shop ………

(ton , gm , kgm)

d   The heaviest weight a bridge can carry, built over a canal ……

(ton , gm , kgm)

Exercise 2

1   Complete.

a   1 ton = ……… kgm , 1 kgm = ……… ton

b   1 kgm = ……… gm , 1 gm = ……… kgm

c   10 ton = ……… kgm , 1000 gm = ……… ton

d   70 kgm = ……… gm , 60 gm = ……… kgm

2   Join each picture to the suitable weight.

30gm   40 kgm   2 kgm   2 ton   40 ton

3 The price of 1 kgm of meat is LE 35. A family eats one and a half kilogram of meat every week. How much money does this family pay for meat in a month?

4 A family of 5 persons eats 2 kgm of fish every week .The price of fish is LE 15 for a kilogram. How much money this family pays for fish in a month?

5 A man bought a golden ornament for his wife. If the present weighs 40 gm, and the price for one gram of gold is LE 170, how much money did the man pay?

6 A man bought 8 ton of iron for building his family house. If the price of 1 kilogram of iron is LE 4.5, find:
a the price of one ton of iron.
b the money paid for the iron he bought.

7 A family of 7 persons eat monthly 5 kilograms of bananas, 2 kilograms of apples and 6 kilograms of oranges. The price for one kgm as shown are LE 3 for oranges, LE 8 for apples, LE 4 for bananas and LE 2 for guavas.
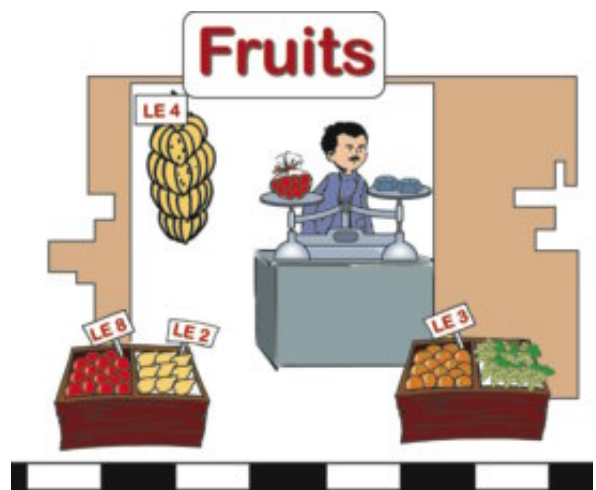
Fruits

Answer the following.
a How much money does this family pay for fruits?
b If the family wants to pay less money, but get the same amount of fruits, what will they do?

Lesson 3　The Time
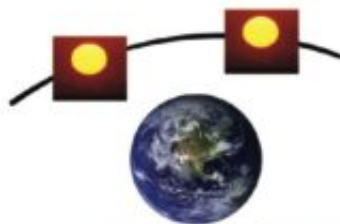
Preface

We deal with time in most life situations. As, you go to your school at a specific time and finish at a specific time, your father goes to work at a specific time and comes back at a specific time. We pray at specific times and watch football (the league and the cup) matches at specific times … etc.

Question:　How is time measured?　……………………………………
　　　　　　What are the units of measuring time?　……………

Drill 1:

You learnt before two units for measuring time, the hour and the minute, complete the following (for revision).

a　1 hour = …… minutes　　　　**b**　1 minute = …… hour

c　3 hours = …… minutes　　　　**d**　120 minutes = …… hour

e　$\frac{1}{2}$ hour = …… minutes　　　**f**　$\frac{1}{2}$ hour = …… minutes

g　$\frac{1}{3}$ hour = …… minutes

h　1 hour and third hour = …… minutes

i　150 minutes = …… hour　　　**j**　90 seconels = …… minutos

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Drill 2:

In this Drill we will know a new unit of measuring time, the **second**. What is the relation between a minute and a second?

> 1 minute = 60 seconds

Complete.

a 3 minutes = …… seconds   **b** 4 minutes = …… seconds

c 240 seconds = …… minutes   **d** 120 seconds = …… minutes

e 1 hour = …… minutes = …… × …… seconds = …… seconds

    i.e. 1 hour = …… seconds

Drill 3:

Here we know another unit for measuring time which is the **day**. What is the relation between a day and an hour?

> 1 day = 24 hours

Complete.

a 2 days = …… hours   **b** 1 day = …… hours

c $\frac{1}{3}$ a day = …… hours   **d** $\frac{1}{4}$ day = …… hours

e 3 days = …… hours   **f** 4 days = …… hours

g 72 hours = …… days   **h** 84 hours = …… days

Drill 4:

Arrange the following in ascending order.

1440 minutes , 3600 seconds , $\frac{1}{3}$ a day , $\frac{1}{8}$ a day

The order is   ………… , ………… , ………… , …………

Drill 5:

Complete the following diagram.

Day — × 24 → Hour — × 60 → Minute — × .... → Sercond

Sercond — ÷ 60 → Minute — ÷ .... → Hour — ÷ .... → Day
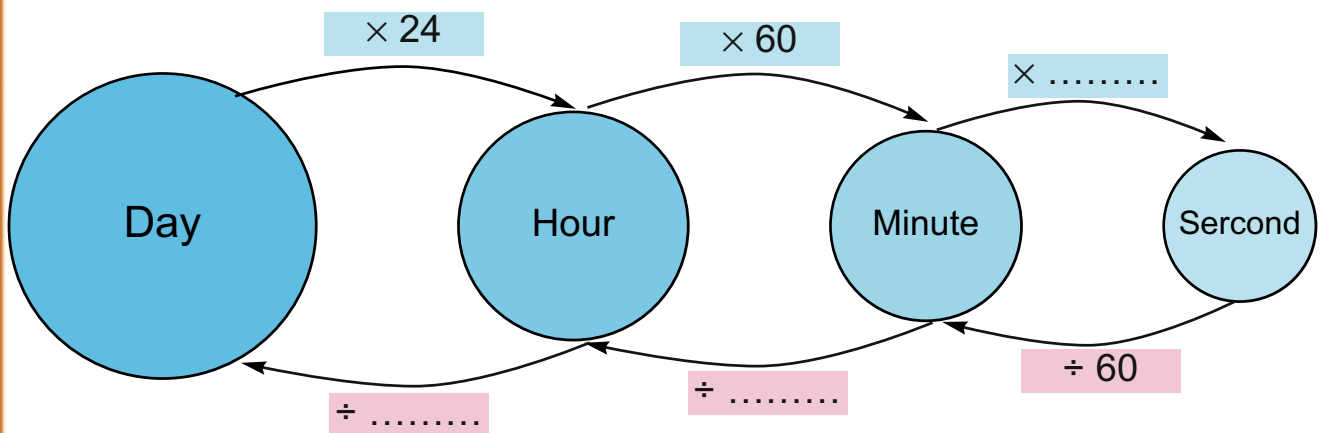
Drill 6:

Choose the suitable answer from between brackets.

a Doing the homework yesterday? ....

($\frac{1}{2}$ a day , 3 hours , 3 minutes , 3 seconds)

b I watched a football match in the televesion for ....

(900 minutes , 100 minutes , 3 hours , $\frac{1}{4}$ a day)

c Preparing Friday breakfast takes ....

($\frac{1}{2}$ a day , $\frac{1}{2}$ an hour , 30 seconds)

d A person sleeps daily for about ....

(500 seconds , 500 minutes , 100 minutes)

e An employee works daily for ....

(48 minutes , $\frac{1}{2}$ a day , 360 seconds)

Drill 7:

Choose the suitable measuring unit:

a The daily time taken by a student to watch T.V.

(hour , second , day)

b Deciding the winner in a running for 100 metre game:

(second , hour , day)

c Deciding the time taken for a football match:

(minute , second , day)

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Exercise 3

1 Complete.

  a   Some units of measuring time are ……, ……, …… and …

  b   1 day = …… hours 1 hour = …… day

        1 hour = …… minutes 1 minute = …… hour

        1 minute = …… seconds 1 second = …… minute

  c   1 day = …… hours = …… × …… minutes = …… minutes

        1 hour = … minutes = …… × …… seconds = …… seconds

        1 day = …… minutes = …… × … seconds = …… seconds

2 Arrange the following in descending order.

$\frac{2}{3}$ day , 18 hours , 1020 minutes

3 Arrange the following in ascending order.

300 minutes , 19000 seconds , 4 hours

4 Mona used to ride her bike in the week ends. Once she rode it at 🕐 and finished at ⏰3:40 . For how long did she ride her bike on that day?

5 Put the suitable sign > , < or = in each ▢ .

  a $\frac{3}{4}$ hour ▢ 50 minutes   **b** $\frac{1}{3}$ day ▢ 7 hours

  c   120 seconds ▢ 3 minutes

  d   2 hours ▢ 9000 seconds

6 An engineer works for 8 hours daily in an investment company. His salary is LE10 for an hour, find his salary:

  a   in a week.   **b**   In 7 weeks (he works 5 days a week).

Unit 3 Activities

Activity 1

10 litres   7 litres   3 litres

We have three pots of capacities 10 litres, 7 litres and 3 litres. The largest pot is completely full of water and the other two pots are empty. Using the least number of steps, show how do you use the three pots for dividing the water into two equal halves, putting five litres in the middle pot and five litres in the large pot.

Activity 2

If the two pans of the shown balance have the same weight in each of the two cases, answer the following questions.

a   What is the relation between the weight of the small cube and the weight of the ball?

b   What is the relation between the weight of the large cube and the weight of the ball?.

General Exercises on Unit 3

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

  a 1 millilitre = $\frac{1}{10}$ litre.   ( )

  b 1 ton = 100 kgm.   ( )

  c 8250 gm = 8.25 ton.   ( )

  d 3 days = 72 hours.   ( )

  e 1 hour = 360 second.   ( )

2 Arrange the following in ascending order:
750kgm , $\frac{1}{2}$ ton , 8000 gm
Arrange the following in descending order:
3 days , 4700 minutes , 75 hours

3 Complete.

  a 3500 millilitres = ... litres

  b 4 litres = ... millilitres

  c 6.75 tons = ... kgm

  d 16 hours = ... day

4 A margarine can is of weight 10 kgm. What is its price, if the price of one kilogram of this margarine is LE 7?

5 A worker is paid LE 8 for every working hour. If he works for 120 hours, how much money will he get?

6 Complete use the suitable sign ($>$, $<$ or $=$)

(a) Two and half hours .... 150 minutes

(b) 3 litres .... 3000 decimetre^3

(c) 2000 millilitres .... 2000 centimetre^3

(d) 520 kgm .... 5000 gm

(e) 3 tons .... 300 kgm

Unit Four

Statistics and Probability

- **Collecting, Displaying and Representing Data**
- **Probabilituy**
- **Unit 4 Activities**
- **General Exercoses pm Imot 4**

Collecting, Displaying and Representing Data

Collecting data

We need to collect data to understand what is going on and take the correct decisions. Data are collected using methods like noticing, experimenting and field (practical) studies.

1 Noticing

Activity 1

In the table below, write the number of pupils, buying from the school canteen during the break for a school week.

Day	Sunday	Monday	Tuesday	Wednesday	Thursday
Number of pupils	...	...	...	...	...

Use your notes to answer the following questions.

a What day scored the greatest and lowest number of pupils buying from the canteen? What is your explanation for that?

b What is the number of pupils not buying from the canteen (those bringing their own sandwiches and drinks from home)?

c Ask other questions ...... (for answering those questions, you may need more notices or to collect more data) ......

Activity 2

Measure temperatures in the morning, noon and evening for a week. Write a report about temperatures during this week (take into consideration that the moderate temperature is about 22°).

a are the temperatures normal, low or high?

b What type of clothes is suitable to wear during this week?

c Ask more questions.

Activity 3

Measure the height of a tree in different times (for example every two months), write your notes about its growth. Remember that you need measuring tools for the trees 2 and 3 (measuring tools are necessary to be able to notice things).

2   Experimenting

Experimenting is basic to enable us to obtain new knowledge, understand a lot of facts in the universe and get to know new information that was not known before.

Activity

- Get two pots **a** and **b**, each having a healthy transplant with green leaves.One of them (let it be plant **b**) has an opaque cover to prevent sun light from reaching the plant.
- Give both plants all the needed water, fertilizers and fresh air.
- Leave the two pots for a week.
- Notice the changes that happen to each of the two pots at the end of the week.
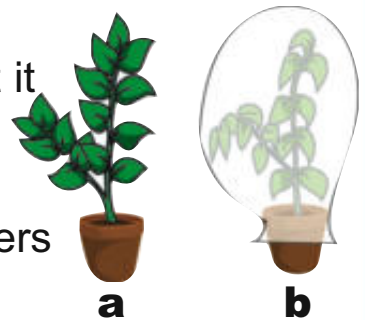
Note: Notice that the plant became fade and its leaves were dry and yellow, when sun light was blocked from reaching it. This is new information that we got by experimenting.

3   Field (practical) study

We often need to know people's opinions about some topic to help us to take the right decision in the light of this knowledge. For example, some television channels question its viewers, or actually a sample of them, about their favourite programs (series, movies, religious programs, kids programs, news, talk shows, entertainment … etc.), and may as well ask about their favourite times for transmitting such programs and their opinions about the anchors … and so on).

Displaying and representing data and deducing information from it

Drill 1:

A class teacher asked the pupils to tell him/her the number of books they read during the summer holidays. Their answers were recorded as follows:

Number of books	Students tallies	Number of pupils
from 0 to 4	ⅢⅢ ⅢⅢ ⅢⅢ //	……………
from 5 to 9	ⅢⅢ ////	……………
from 10 to 14	ⅢⅢ ⅢⅢ /	……………
from 15 to 19	////	……………
from 20 to 24	//	……………
25 and more	/	……………

Notice that a data is arranged in groups (each of 5). Complete the above table, then answer the following questions.

a   What is number of pupils in the class?

b   Arrange the sets of books in descending order (in a table).

c   Find the greatest number in the table. How many books does each of them read?

d   Show how to make use of the above data in preparing suitable books for the school library.

Representing data using a histogram

Drill 2:

The table below, shows the number of pupils in primary 4 participating in school activities in a primary school.

Activity	Sports	Social	Artistic	Cultural
Number of Pupils	45	25	30	15

a complete representing by the histogram.

b What are your suggestions to encourage pupils to participate in school activities?
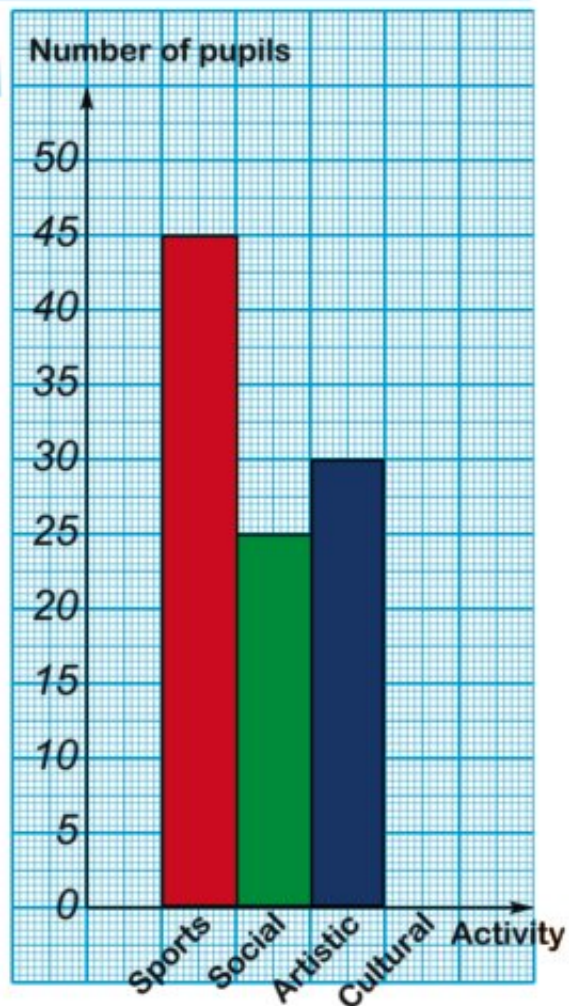
Drill 3:

The table opposite shows the number of visitors of the different museums in Egypt in two years, 2005/2006 and 2006/2007.

Museum \ Year	Historic	Artistic	National
2005/2006	120	15	10
2006/2007	150	40	10

Complete representing these data by double bars (use green colour for 2005/ 2006 and yellow colour for 2006/2007), then answer the questions.

a Which is greater, the number of visitors of history museums in 2005/2006 or in 2006/2007? What is the amount of increase?

Number of visitors

```
160
150
140
130
120
110
100
 90
 80
 70
 60
 50
 40
 30
 20
 10
  0
        Historic        Artistic        National        Museum
```
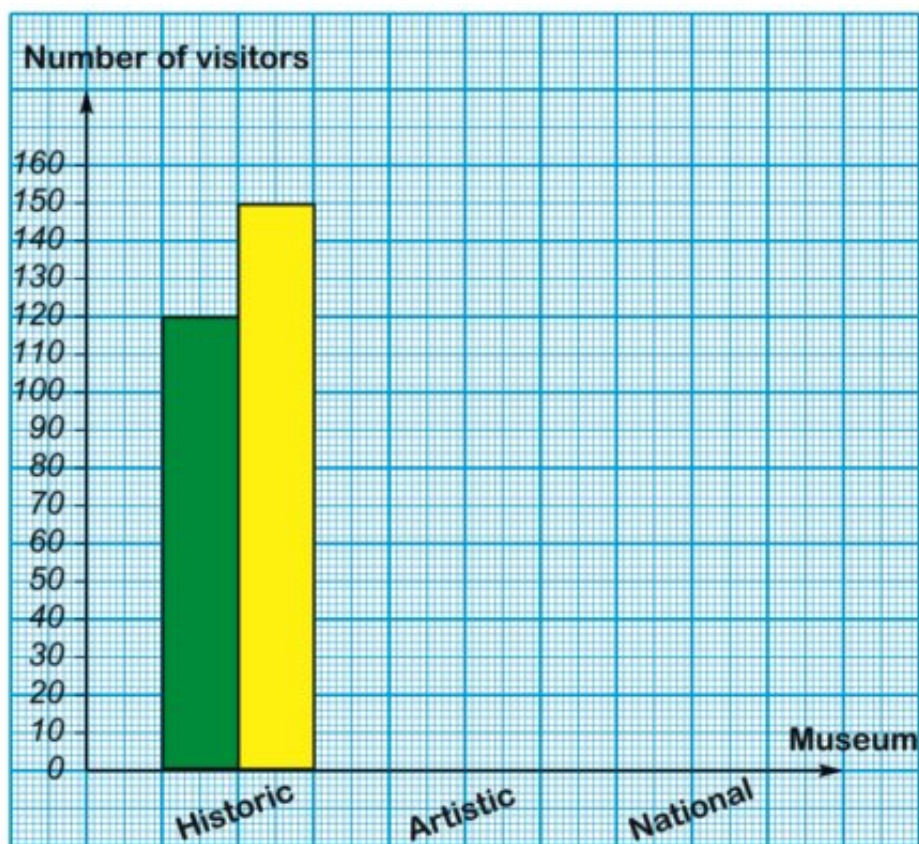
b In the year 2005/2006, which is greater, the number of visitors to the history museums to the arts museums?

c In 2006/ 2007, which is greater, the number of visitors to arts museums or to the national museums? Find the difference.

d What do you think about the number of visitors of the three types of museums in 2005/2006 and 2006/2007?

e What are your suggestions to encourage people to visit museums, specially arts museums and national museums?

Activity

Ask your teacher or technology instructor or any skilled person in using computer to teach you how to use Excel program to get double bars, showing an example of what we can get out of it. The figure on the opposite page shows a comparison between the exports, in millions, of different zones (East, West, North) and in different times of the year (1st, 2nd, 3rd and 4th quarters of the year). Notice the figure that represents these data, then answer: the following questions.

Quarter / Direction	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
East	20.4	27.4	90	20.4
West	30.6	38.6	34.6	31.6
North	45.9	46.9	45	43.9

a What was the greatest value of exports in these zones? What was that zone? When?

b What was the least value of exports in these zones? What was that zone? When?

Exports in millions
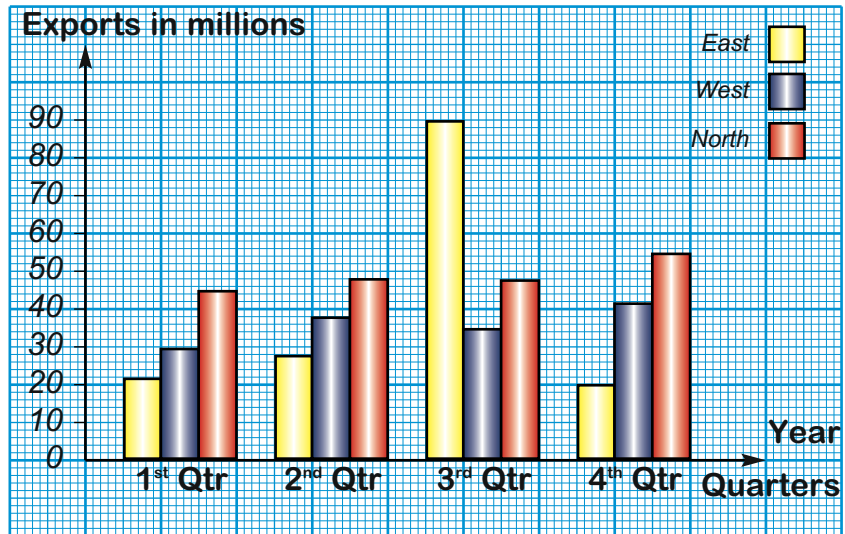
Drill 4:

The diagram shows the donations of Ahmed and Victor in the first five months of 2008 for the children cancer hospital (blue bars represent Ahmed's donations and red bars represent Victor's donations.

Donations in pounds
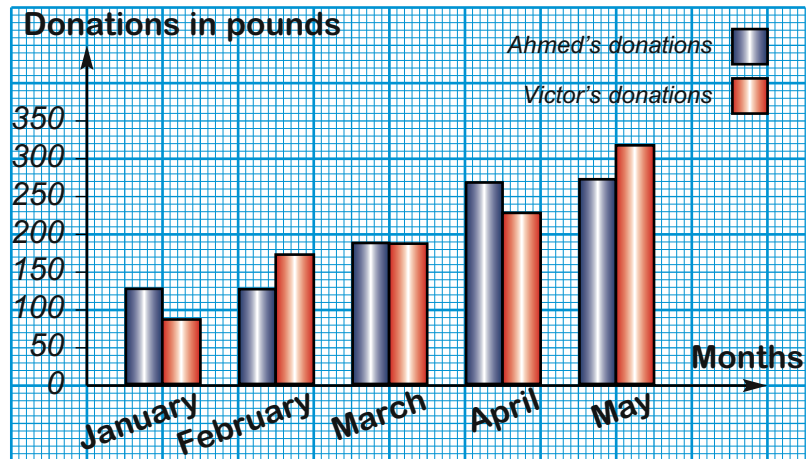
Record the data in a table, then answer the following questions.

a What was the month of equal donations from Ahmed and Victor?

b What is the difference between the greatest donation and the least donation from each of them?

c What do you know about the children cancer hospital?

d Discuss the importance of donating for charity projects.

Drill 5:

The table below shows the number of hours that Walid and Fouad spend to study their lessons in a week.

Day \ Pupil	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
Walid	3	4	3	6	4	2
Fouad	4	5	2	5	5	3

Represent these data by double bars.

Drill 6:

The table below shows the production of hand made carpets that were exhibited by a group of producing families in an exhibition.

Family	First	Second	Third	Fourth	Fifth
Number of carpets	35	25	5	15	20

Represent these data, once using a histogram and another using Excel program on the computer.

Representation of data using the tree-diagram

Drill 7:

How many different 3-digit numbers are there using 1, 2 and 3?
Write these numbers.

Hint: You can use a tree-diagram to write easily the required
numbers (without missing or repeating any of them).

So, complete the following tree-diagram.

Resulting Number	Hundreds digit	Tens digit	Units digit
321 ←	3 ←	2	
			1
231 ←	2 ←	3	
.... ←	.... ←	....	
			2
.... ←	.... ←	....	
.... ←	.... ←	....	
			3
.... ←	.... ←	....	
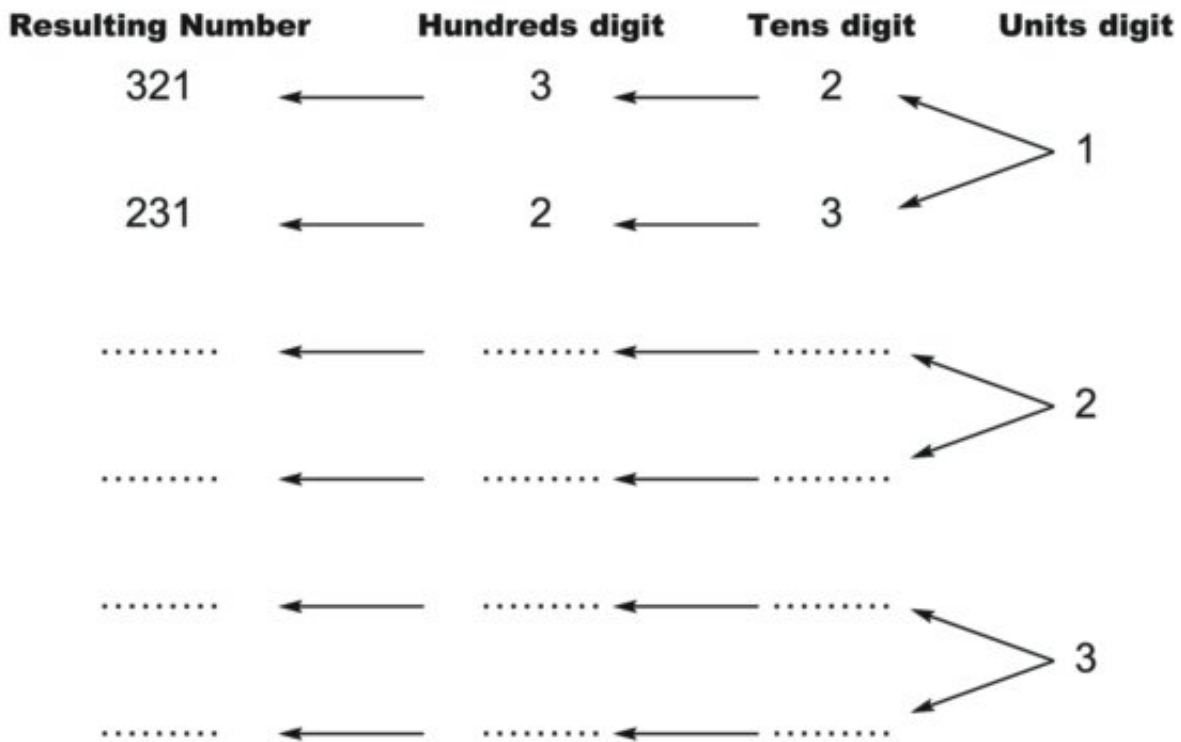
Number of resulting numbers: ....

These numbers are: ....

Activities

Using the above drill, answer the following questions.

1   Using a tree-diagram, how many different 4-digit numbers are
there using 3, 5, 7 and 9.

2   Using a tree-diagram, how many different 3-digit numbers are
there using 1, 2, 3, 4 and 5.

The Probability

Chance for occurrence of a definite event

We learnt that events are either certain, impossible or possible. Also, probability expresses the chance of occurrence of an event. Let the probability of occurrence of a certain event be 1, then the probability of occurrence of a possible event lies between 0 and 1.

Drill 1:

Complete and choose the correct answer (✔) as the example.

	Event	Probability degree	Probability of occurrence
Example:	Sun rises from east	Certain	Zero , 1✔ , between 0 and 1
	Pupil rides a bike to school	Possible	Zero , 1 , between 0 and 1
	Family visits the seashore every year	....	Zero , 1 , between 0 and 1
	Man lives on earth forever	....	Zero , 1 , between 0 and 1
	Day comes after night	....	Zero , 1 , between 0 and 1
	Weather is sunny tomorrow	....	Zero , 1 , between 0 and 1

Drill 2:

The weather forecast bureau expected that there will be a chance of a sunny day tomorrow with ratio 0.8 and that ratio will change for after tomorrow with a ratio $\frac{3}{4}$. Which of the two days will be of greater probability of being sunny, tomorrow or after tomorrow?

Note: $0.8 = 0.80$ and $\frac{3}{4} = \frac{75}{100} = 0.75$

Complete. …………… will be of greater chance of bening sunny.

Calculating probability

Drill 1:

Kamal spun a coin 100 times. He got head 45 times. What is the probability of getting head or tail.

Solution:

Possible events are either head or tail probability of a head, as in his experiment = $\frac{45}{100}$ = 0.45

The number of times he got tail = 100 – 45 = 55 times

The probability of tail as in his experiment, complete.

Probability = $\frac{\ldots}{100}$ = ………

What do you notice?

$\frac{45}{100} + \frac{55}{100} = \frac{45 + 55}{100} = \frac{100}{100} = 1$

i.e. the sum of probabilities of all possible events = 1

Drill 2:

Sherin had a box of pins in which there were 100 pins. All pins fell on the floor. Some stood on their bases, like this ⊥ , and others fell tilted, like that ⊢ .

If the number of tilted pins were 35 pins, calculate the probability that a pin falls on its base.

Solution: Complete.

The possible events are either the pin is on its base or tilted.

Probability to be tilted, as in the experiment $= \dfrac{\cdots}{\cdots} = 0.35$

Probability to be on its base, as in the experiment $= 100 - 35 = \ldots$

Another solution:

The possible events are either the pin is on its base or tilted.

Probability to be tilted, as in the experiment $= \dfrac{35}{100} = 0.35$

Probability to be on its base, as in the experiment $= 1 - 0.35 = \ldots$

Drill 3:

Consider all possible outcomes have the same chance of occurring.
Complete.

a Probability of appearance of head or tail when tossing a coin $= \dfrac{1}{2}$.

b Probability of getting any number on the upper face when rolling a dice $= \dfrac{1}{\cdots}$.

c The figure opposite shows a disc divided into equal sectors numbered from 1 to 10.
Probability of the pointer pointing at one of the sectors (for example number 7) $= \dfrac{1}{\cdots}$.
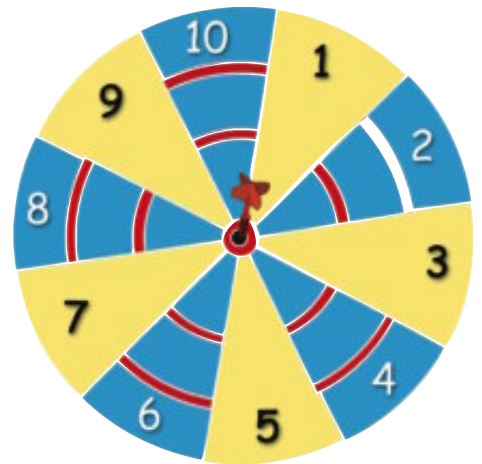
Drill 4:

A box contains 5 identical balls, 2 of them are blue and 3 red. If a ball is drawn blindly, what is the probability that it is red?
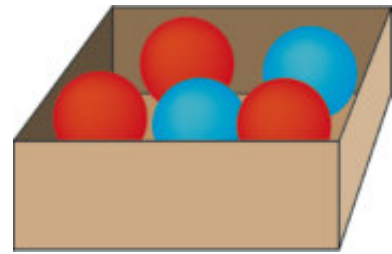
Solution: Complete.

Probability of being red = $\frac{\text{number of red balls}}{\text{total possible outcomes}}$ = $\frac{3}{...}$ = 0.6

Drill 5:

A box contains 4 blue balls, 2 red balls, and 3 green balls, all equal in size. If a ball is drawn blindly, complete.
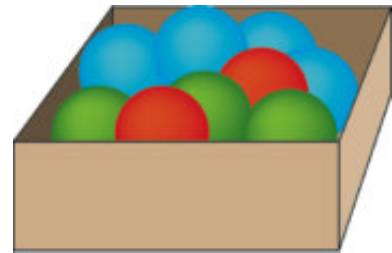
a   Probability of drawing a blue ball = $\frac{4}{...}$

b   Probability of drawing a red ball = $\frac{...}{9}$

c   Probability of drawing a green ball = $\frac{...}{...}$

d   Probability of drawing a non-blue ball = $1 - \frac{...}{...}$ = ...

e   Probability of drawing a non-red ball = $1 - \frac{...}{...}$ = ...

Drill 6:

You have identical cards with the numbers 1, 4, 6, 8 and 10 written on them. If one card is drawn blindly, what is the probability of having a number between 5 and 9?

$$1 \qquad 4 \qquad \boxed{6} \qquad \boxed{8} \qquad 10$$

Complete.

Probability of having a card with a number between 5 and 9 on the drawn card = $\frac{2}{...}$ = 0.4

Unit 4 Activities

Activity 1

The production of one of the crops was as shown in the table (numbers are in thousands of tons).

Year	1990	1965	1980	1985	2000	2005
Amount	25	30	50	55	75	80

a Choose a graphic method to represent these data.

b Represent these data according to the method you chose.

c If the production of this crop continues to raise in the same rate, what do expect the production to be between 2020 and 2025?

Activity 2

Read the graph opposite which shows the money saved by Samira, in pounds, for some years, then answer.

a Form a table showing Samira's savings as in the graph.

b What is the total sum of money saved by Samira?
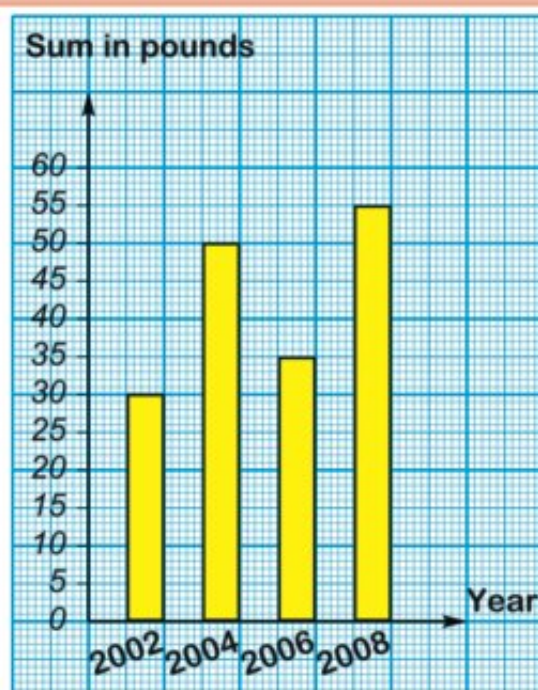
Activity 3

A box contains 5 red balls, 3 blue balls and 4 green balls, all of the same size. A ball was drawn blindly. Complete.

a Probability of being a blue ball is ....

b Probability of bening a non-green ball is ....

c Probability of being either red or green ball is ....

General Exercises on Unit 4

1 Give an example of a certain event, another of an impossible event, and a third of a possible one, then show the probability of each of them to happen.

2 In a box, there are 5 red balls, 3 blue balls and 7 green balls, equal in size. A ball is drawn blindly. Answer the following questions.
   a what is the probability that the drawn ball is blue?
   b What is the probability that the drawn ball is green?
   c What is the probability that the drawn ball is not red?

3 A questionnaire was made among a set of youths about their favourite sports. The results were as follows:

Sport	Football	Basketball	Volleyball	Swimming	Table tennis	Others
Number	50	28	15	25	10	10

Complete representing these data on the histogram below.
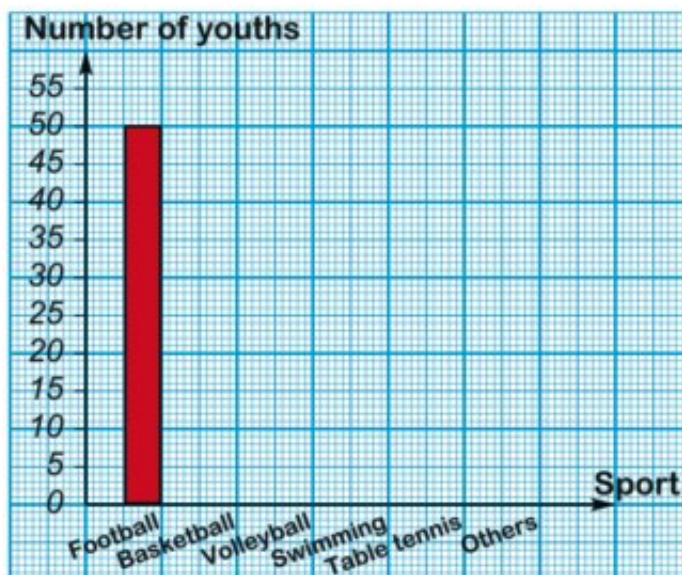
4 The table below shows the number of pupils, in two schools, taking part in the groups of school activities. Complete representing these data by double bars, then answer the questions.

Group / School	Swimming friends	Patients friends	Mathematics friends	Science friends	Social Studies friends	English language friends
First	50	45	3	25	30	20
Second	60	50	2	20	25	15
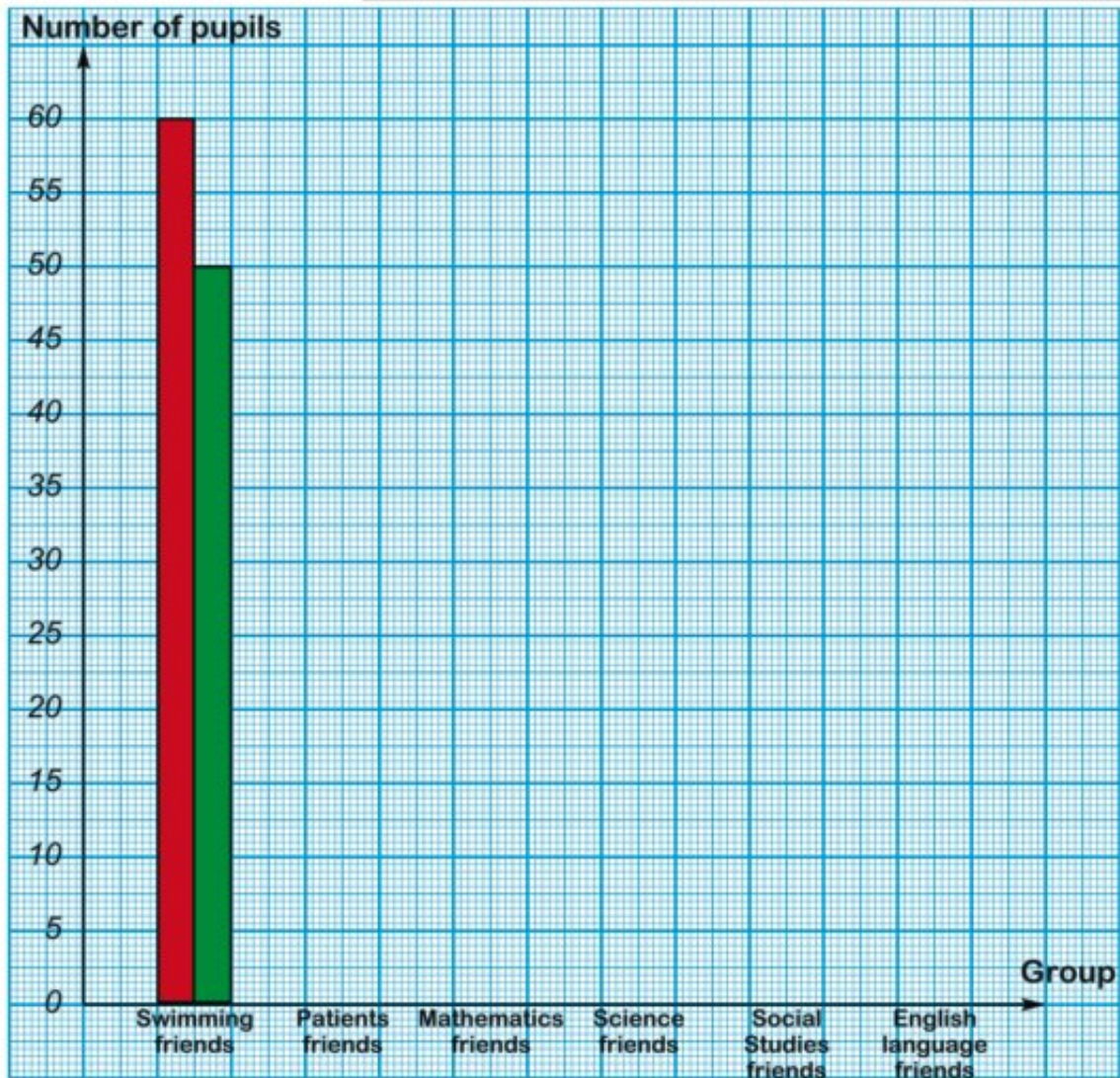
a Which school has the greater number in the mathematics group? What is the difference between them?

b What is the number of pupils in the swimming group in both schools? What is the difference between them?

c Which school has the larger number of pupils in the school activities? What do you think about the difference between the number of pupils in the school activities in both schools?

1 Find the result, then approximate as shown between brackets.

  a $2\ 478 + 9\ 835 =$ ....   (to the nearest hundred)

  b $70\ 000\ 000 - 134\ 659 =$ ....   (to the nearest thousand)

  c $59.568 + 45.73 =$ ....   (to the nearest whole number)

  d $86.7 - 3.45 =$ ....   (to the nearest one decimal place)

2 Put the suitable sign >, < or = in each ☐.

  a 1.75 ☐ $1\frac{3}{4}$

  b 1.25 litre ☐ 1500 millilitre

  c 750 gm ☐ $\frac{1}{2}$ kgm

  d $6\frac{1}{2}$ ton ☐ $6\ 500$ kgm

  e 35×10 ☐ 3×100

  f $785 \div 10$ ☐ $8\ 000 \div 100$

3 **From the opposite figure answer the following.**

  a What is the name of the figure ABCD? ....

  b Draw a line to divide the figure into two congruent parts.

  c How many lines of symmetry does the figure ABCD have?

  d Calculate the perimeter and the area of the figure ABCD.
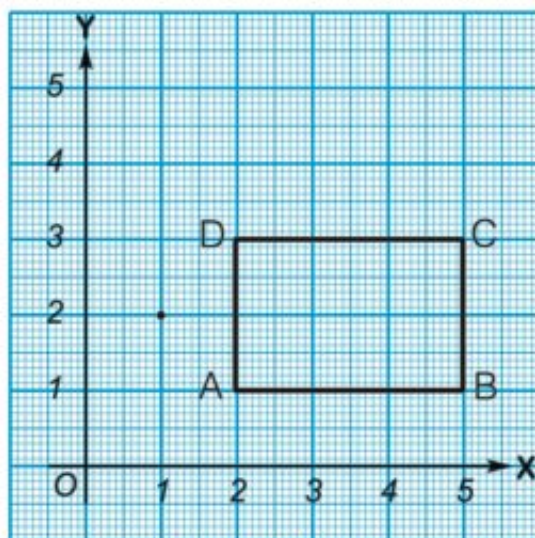
4 **a** Calculate the value of:

  $(705\ 894 - 5\ 894) + 65 \times (800 + 200)$

  b find the number that if added to 235 849 the result will be 4 312 765.

Exercise 2

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a $3.2 + 7.18 \simeq 10$, to the nearest whole number. ( )

b $9.256 \times 1\,000 = 9\,000$, to the nearest thousand. ( )

c $8.765 + 12.29 = 21.05$ to the nearest hundredth. ( )

d The line of symmetry of a figure is that line dividing it into two congruent parts. ( )

e There is only one line of symmetry for the scalene triangle. ( )

2 Complete.

a 100 , 99.4 , 98.8 , ... , ...

b 4 ton = ... kgm

c A third of a day = ... hours = ... minutes

d $4\,225 \div 10 =$ .... $\simeq$ .... to the nearest hundred

3 If l is the side length of a square and p is its perimeter, then:

a Write the relation between l and p.

b Complete the following table.

l	1	2	...
p	...	...	12

c Represent the data of the table using a bar graph.

4 **a** Calculate: $5 \times (35 + 65) - (2\,250 \div 1\,000)$

b What is the number that if you subtract 38 245 from it, the result will be 475 000?

Exercise 3

1 Choose the correct answer from between brackets.

   a   52 789 + 4 212 $\simeq$ ......, to the nearest hundred

                                       (5 700 , 57 000 , 57 001)

   b   32 145 – 9378 $\simeq$ ......, to the nearest thousand

                 (23 thousand , 22 thousand , 21 thousand)

   c   775 $\times$ 100 = ...   (775 , 77.50 , 77 500)

   d   42819 $\div$ 1000 $\simeq$ ......, to the nearest hundredth

                               (42.82 , 42.81 , 42.80)

   e   4750 milliltre = ...   (475 litres , $47\frac{1}{2}$ litres , $4\frac{3}{4}$ litres)

2 Put the suitable sign >, < or = in each $\square$.

   a $3\frac{1}{4}$ kgm $\square$ 3 250 gm   **b**   9 750 kgm $\square$ 9 ton

   c   72 hours $\square$ three days   **d** $2\frac{1}{3}$ hours $\square$ 150 mimute

   e   65 $\times$ 100 $\square$ 6.5 $\times$ 1000   **f**   175 $\div$ 100 $\square$ 175 $\div$ 1000

3 From the opposite figure answer the questions.

   a What is figure ABCD called?

   b Complete.

      $\overleftrightarrow{BC}$ ... $\overleftrightarrow{AB}$ ($\perp$ or //)

      $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are two ....lines   (intersecting , parallel)

   c Draw the line of symmetry for the figure ABCD, if it exists .

   d Draw two line segmerts to get two congruent triangles and shade each of them.
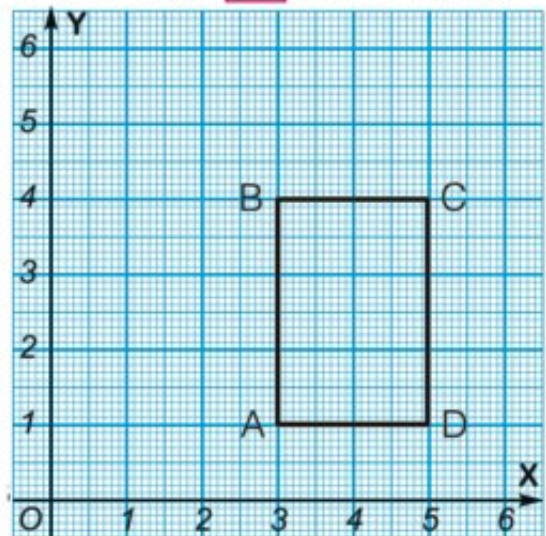
4 Find the number that if multiplied by 10, and you subtract 15 from it, then you divide it by 100, the result will be 0.25.

Exercise 4

1 Choose the correct answer from between brackets.

a $54.238 + 5.8 = $ ...... $(54.296 , 59.246 , 60.038)$

b The value of 7 in the number $123.579 = $ ......

$(7, 70, 0.07, 700)$

c $4\frac{3}{100} = $ ...... $(4.03 , 4.3 , 4.003 , 4.0003)$

d $256.104 = 256 + 0.1 + $ ...... $(0.04 , 0.4 , 0.004)$

e If the distance between two villages is 4 800 metres, this approximately equals ......

$(5\ 000\ km , 4\ 000\ km , 5\ km , 4\ km)$

2 Complete.

a $4\ 275 \simeq $ ......, to the nearest thousand.

b $98.451 \simeq $ ......, to the nearest tenth.

c The square has ...... lines of symmetry.

d The diagonal in the rectangle divides it to two ....
triangles, but it is not a line of .... for it.

3 From the opposite figure, answer the following questions.

a What is the figure ABCD called? ....

b Draw the lines of symmetry for the figure ABCD.

c What is the type of triangle ABC according to its side lengths?

d Complete.

$\overline{AC}$ ...... $\overline{BD}$ and $\overleftrightarrow{AB}$ ...... $\overleftrightarrow{CD}$.
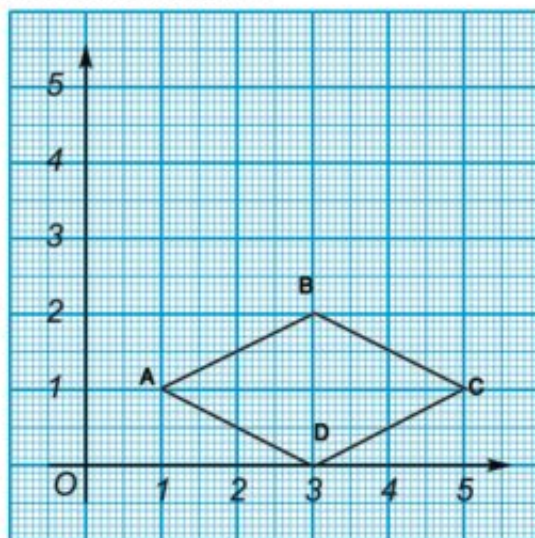
4 **a** The table below represents the number of pupils in the first four levels in a primary school. Complete representing the data on the histogram.

Level	First	Second	Third	Fourth
Number of pupils	80	60	100	70
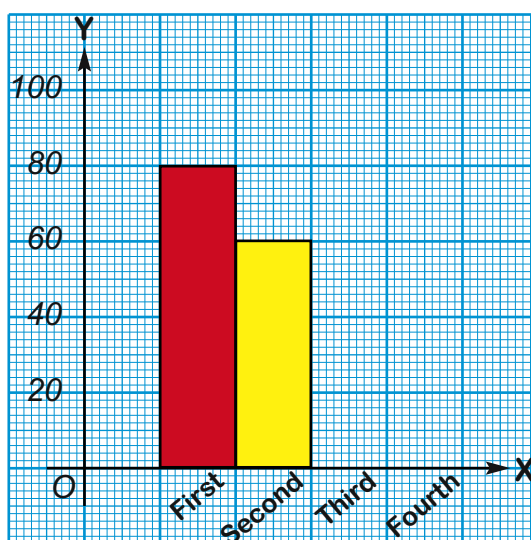
b Calculate the area of a square whose perimeter is 28 cm.

Exercise 5

1 Put (✔) for the correct statement and (✗) for the incorrect one and correct the wrong statement.

a 4.256 + 4.4 = 8.260   ( )

b 19.07 − 8.007 = 7.063   ( )

c 4.075 = 4 + 0.7 + 0.005   ( )

d The value of 2 in the number 54.127 is 0.02   ( )

2 Put the suitable sign >, < or = in each ☐.

a 4.772 ☐ 8 − 3.228

b 6.18 + 3.82 ☐ 87.56 − 77.5

c 8780 kgm ☐ 9 ton

d LE $4\frac{3}{4}$ ☐ PT 475

3 From the opposite figure, answer the following.

a What is the figure ABCD called? ....

b How many lines of symmetry does it have? ....

c Complete.
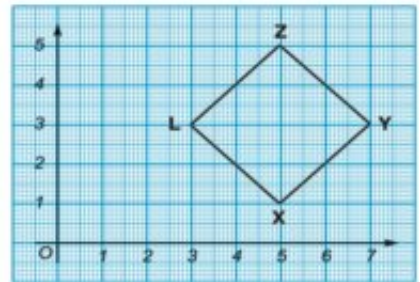
XY = ... = ... = ... , $\overleftrightarrow{XZ}$ ...... $\overleftrightarrow{YL}$ and $\overleftrightarrow{XZ}$ ...... $\overleftrightarrow{YL}$

4 a A box contains ten balls, 4 are red and the rest are white. If you blindly draw one ball, what is the probability that it will be white?

b The table below represents the number of students taking part in school activities from primary four and five. Represent the data of the table in the coordinate plane below using double bars.

Activity	Cultural	Arts	Sports
Pupils from primary 4	10	15	30
Pupils from primary 5	20	25	15
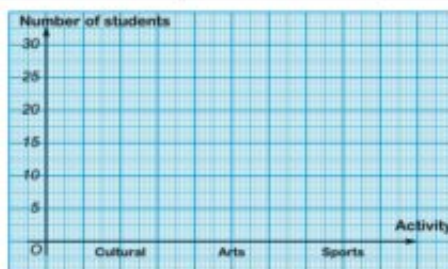
General drills

Drill (1)

(1) *Find the result, then approximate it due to what between brackets :*

[a] $2\ 478 + 9\ 835 \simeq$ ....   (to the nearest 100)

[b] $70\ 000\ 000 - 134\ 659 \simeq$ ....   (to the nearest 1000)

[c] $59.\ 568 + 45.73 \simeq$ ....   (to the nearest whole number)

[d] $86.7 - 3.45 \simeq$ ....   (to the nearest one decimal)

(2) *Put the suitable sign > or < or = in* ☐ :

[a] 1.75 ☐ $1\frac{3}{4}$ [b] 1.25 litre ☐ 1500 millilitre

[c] 750 gm ☐ $\frac{1}{2}$ kg.   [d] $6\frac{1}{2}$ ton ☐ $6\ 500$ kg.

[e] 35×10 ☐ 3×100 [f] $785 \div 10$ ☐ $8\ 000 \div 100$

(3) *From the drawn figure , answer :*

[a] What is the name of the figure ABCD ?

[b] Draw a line to divide it into two congruent parts.

[c] How many lines of symmetry are there for the figure ABCD ?

[d] Calculate the perimeter and the area of the figure ABCD
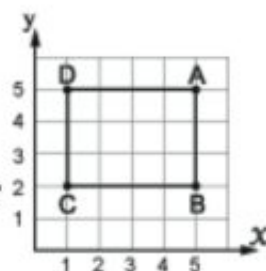
(4) [a] Calculate the value of : $(705\ 894 - 5\ 894) \div 65 \times (800 + 200)$

[b] Find the number which if added to $235\ 849$ the result is $4\ 312\ 765$

Drill (2)

(1) *Put the sign (√) beside the correct statement and the sign (x) beside the incorrect statement (correct the incorrect part) :*

[a] $3.2 + 7.18 \simeq 10$ to the nearest whole number.   ( )

[b] $9.256 \times 1\,000 \simeq 9000$ to the nearest thousand.   ( )

[c] $8.765 \div 12.29 \simeq 21.05$ to the nearest one decimal.   ( )

[d] The line of symmetry of a shape is that line which divides it into

     two congruent parts.   ( )

[e] The scalene triangle has one line of symmetry.   ( )

(2) *Complete :*

[a] 100 , 99.4 , 98.8 , ········· , ·········

[b] 4 ton = ········· kg.

[c] A third of the day = ········· hours = ········· minutes

[d] $4\,225 \div 10 \simeq$ ·········   (to the nearest hundred)

(3) *If the side length of a square is L and its perimeter is P :*

[a] Write the mathematical relation between P and L

[b] Complete the following table.

[c] Represent the data in the table by double bars.

L	1	2	·········
P	·········	·········	12

(4) *Calculate the value of the following :*

[a] $5 \times (35 + 65) - (2\,250 \div 1\,000)$

[b] What is the number that if we subtract 38 245 from it , the result will be 475 000

Drill (3)

(1) *Choose the correct answer from those between brackets :*

[a] $52\ 789 + 4\ 212 \simeq$ ....   (to the nearest hundred)

(5700 , 57 000 , 57 001)

[b] $32\ 145 - 9\ 378 \simeq$ ....   (to the nearest thousand)

(23 thousands , 22 thousands , 21 thousands)

[c] $775 \times 100 \simeq$ ....   (7 750 , 77.50 , 77 500)

[d] $42\ 819 \div 1\ 000 \simeq$ ....   (to the nearest one decimal)

(42.8 , 42.9 , 43)

[e] 4 750 millilitre = ...   (475 litre , $47\frac{1}{2}$ litre , $4\frac{3}{4}$ litre)

(2) *Put the suitable sign (> or < or =) in* $\boxed{}$:

[a] $3\frac{1}{4}$ kg. $\boxed{}$ 3 250 gm.   **[b]** 9 750 kg $\boxed{}$ 9 tons.

[c] 72 hours $\boxed{}$ three days.   **[d]** $2\frac{1}{3}$ hours $\boxed{}$ 150 minutes.

[e] 65 x 100 $\boxed{}$ 6.5 x 1 000   **[f]** 175 ÷ 100 $\boxed{}$ 175 ÷ 1 000

(3) *From the opposite figure , answer the following :*

[a] What is the name of the figure ABCD

[b] Complete : $\overleftrightarrow{BC}$ .... $\overleftrightarrow{AB}$ ($\perp$, //)

$\overleftrightarrow{AB}$, $\overleftrightarrow{BC}$ are two .... straight lines

(intersecting , parallel)
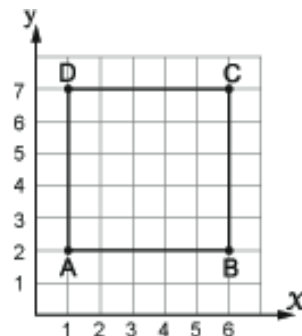
[c] Draw the line of symmetry of the figure ABCD if it exists.

[d] Draw two line segments to get two congruent triangles and shade each of them.

(4) Find the number which if it is multiplied by 10 and we subtact 15 from the result and the remainder is divided by 100 the final result will be 0.25

Drill (4)

(1) *Choose the correct answer from those between brackets :*

[a] $54.238 + 5.8 = \cdots\cdots$ $(54.296 , 59.246 , 60.038)$

[b] The value of the digit 7 in the number $123.579 = \cdots\cdots$ $(7 , 70 , 0.07 , 700)$

[c] $256.104 = 259 + 0.1 + \cdots\cdots$ $(0.04 , 0.4 , 0.004)$

[d] $24.013 - 4.97 = \cdots\cdots$ $(19.043 , 20.043 , 20.016)$

[e] If the distance between two villages $= 4\,800$ metre, then this distance approximately equals $\cdots\cdots$ $(5\,000$ km. $, 4\,000$ km. $, 5$ km. $, 4$ km.$)$

(2) *Complete :*

[a] $4\,275 \simeq \cdots\cdots$ (to the nearest thousand)

[b] $98.451 \simeq \cdots\cdots$ (to the nearest one decimal)

[c] There are $\cdots\cdots$ lines of symmetry in the square.

[d] The diagonal of the rectangle divides it into two $\cdots\cdots$ triangles but it is not a line of $\cdots\cdots$

(3) *From the opposite figure answer the following :*

[a] What is the name of the figure ABCD ?

[b] Draw a lines of symmetry of the figure ABCD.

[c] What is the type of the triangle ABC with respect to its sides.

[d] Complete : $\overline{AC} \cdots\cdots \overline{BD}$, $\overleftrightarrow{AB} \cdots\cdots \overleftrightarrow{CD}$
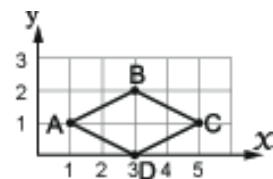
(4) [a] The following table represents the number of pupils of the first four grades in a primary school. Complete the representation of these data by histogram.
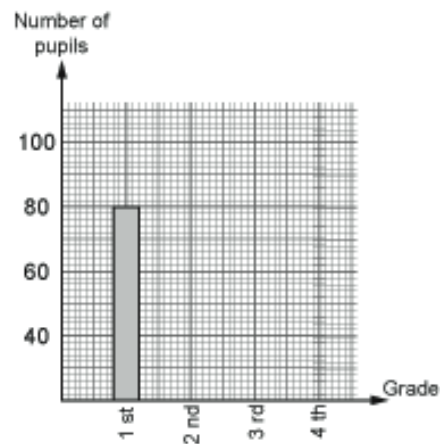
Grade	First	Second	Third	Fourth
Number of pupils	80	60	100	70

[b] Find the area of the square whose perimeter equals $= 28$ cm.

Drill (5)

(1) *Put the sign (√) opposite to the correct statement and (X) opposite the incorrect one , then correct the error :*

    [a] $4.256 + 4.4 = 8.260$ (   )

    [b] $19.07 - 8.007 = 7.003$ (   )

    [c] $4.075 = 4 + 0.7 + 0.005$ (   )

    [d] The value of the digit 2 in the number 54.127 is 0.02   (   )

(2) *Put the suitable sign $>$ or $<$ or $=$ in* ☐ :

    [a] 4.772 ☐ $8 - 3.228$ **[b]** $6.18 + 3.82$ ☐ $87.56 - 77.5$

    [c] $8\,780$ kg. ☐ 9 tons.   **[d]** $4\frac{3}{4}$ pounds ☐ 475 piaster.

(3) *From the opposite figure, answer the following :*

    [a] What is the name of the figure XYZL ?

    [b] How many line of symmetry are there for the figure ?

    [c] Complete : $XY = ...= ....= ....$,

    $XZ ....\; YL$, $\overleftrightarrow{XZ} ....\; \overrightarrow{YL}$
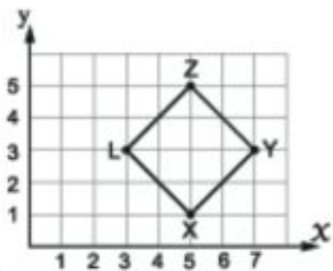
(4) [a] A box contains 10 balls , 4 of them are red the remainder are white. If a ball is drawn blindely, what is the probability that the drawn ball is white ?

    [b] The following table shows the number of the pupils who are participating in the school activities of the two grades 4th and 5th in a primary school. Represent these data by double bars.
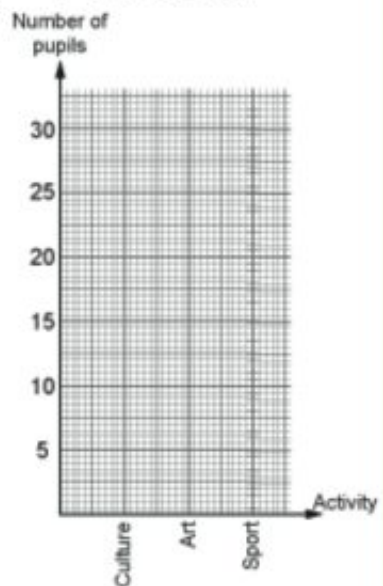
The activity	Culture	Art.	Sport
Number of pupils (4th grade)	10	15	30
Number of pupils (5th grade)	20	25	15

1 *Choose the correct answer from those between brackets :*

(1) 1548 ÷ 100 = ··············   [154.8 , 15.48 , 154 , 0.48]

(2) 251056 ≃ 251100 to the nearest ··············   [10000 , 1000 , 100 , 10]

(3) The event of (the sun rises from the west) is ·············· event.

                   [impossible , certain , its probability = 1]

(4) 6 thousandth added to 4 hundredth equals ·············· [0.46 , 0.046 , 0.64 , 0.0064]

(5) The value of the digit 3 in the number 2.35 = ··············

                   [0.3 , 3 , 0.03 , 0.003]

(6) The number which is next to the number 314.99 is ··············

                   [314.00 , 315 , 314.100]

(7) The probability of appearing an odd number on the upper face of die = ··············

                   [$\frac{1}{6}$, $\frac{2}{6}$, $\frac{3}{4}$, $\frac{1}{2}$]

(8) 7 + 0.4 + 0.03 + 0.009 = ··············   [7.349 , 7.937 , 7.439]

(9) $\frac{2}{3}$ a day = ·············· hour.   [16 , 15 , 6 , 18]

(10) The value of the digit (6) in the number 18.36 is ·············· [6 , 60 , 0.06 , 600]

(11) 9 $\frac{7}{100}$ = ··············   [9.07 , 9.7 , 9.007 , 7.09]

(12) The third of a day = ·············· hours.   [12 , 3 , 8 , 15]

(13) 4.5 ton = ·············· kg.   [45 , 54 , 4500 , 5400]

(14) $\frac{3}{4}$ = ··············   [0.75 , 0.8 , 0.0755 , 0.25]

(15) The probability of the certain event = ··············   [zero , 0.5 , 1 , 2]

(16) 657 $\frac{4}{5}$ = ·············· to the nearest whole number.   [657 , 658 , 655, 659]

(17) The probability of appearing a head as throwing a metallic coin = ··············

                   [1 , $\frac{1}{2}$, zero , $\frac{2}{3}$]

(18) The number $\frac{17}{5}$ = ··············   [2 $\frac{3}{5}$, 5 $\frac{2}{3}$, 5 $\frac{3}{5}$, 3 $\frac{2}{5}$]

(19) The value of the digit (4) in the number 0.241 is ·············· [0.04 , 0.4 , 4 , 40]

(20) One day = ·············· minutes.   [3600 , 60 , 24 , 1440]

(21) The number of the lines of symmetry of the rectangle = ··············

                   [zero , 4 , 2 , 3]

(22) ·············· is from the methods of collecting data.

                   [Symmetry , Congruence , Observation]

(23) 7 $\frac{3}{5}$ = ··············   [7.6 , 6.7 , 7.5]

(24) 14 days and 4 weeks = ·············· weeks.   [4 , 5 , 6]

(25) 78 ÷ 10 = ··············   [8.7 , 780 , 7.8]

(26) 494 ÷ 100 = ··············   [5.95 , 4.94 , 49.4]

(27) The number of lines of symmetry of the isosceles triangle is ⋯⋯⋯⋯

[1 , 2 , 3 , 4]

(28) $4\dfrac{1}{5}$ ⋯⋯⋯⋯ 4.2   [> , < , = , otherwise]

(29) $35.26 \simeq 35.3$ to the nearest ⋯⋯⋯⋯ .   [0.1 , 0.01 , 0.001 , 10]

(30) The decimal which is included between (0.6 , 0.7) is ⋯⋯⋯⋯ .

[0.71 , 0.67 , 0.59 , 0.76]

(31) 25 decimetre cube = ⋯⋯⋯⋯   [$\dfrac{15}{5}$ litre , 25 litre , $\dfrac{1}{4}$ litre , 25 millilitre]

(32) $7\dfrac{3}{5}$ = ⋯⋯⋯⋯   [$\dfrac{15}{5}$, $\dfrac{26}{5}$, $\dfrac{38}{5}$, $\dfrac{10}{5}$]

(33) $7\dfrac{3}{5}$ = ⋯⋯⋯⋯   [7.6 , 6.7 , 7.5]

(34) The value of the digit (3) in the number 4.238 is ⋯⋯⋯⋯ [0.3 , 0.03 , 3 , 0.003]

(35) There are ⋯⋯⋯⋯ lines of symmetry of the square   [four , three , two , one]

(36) The number of lines of symmetry of the rhombus is = ⋯⋯⋯⋯

[four , three , two , one]

(37) $\dfrac{9}{4}$ = ⋯⋯⋯⋯   [2.5 , 2.25 , 2.75 , 2.1]

(38) $25\dfrac{1}{3}$ kg. = ⋯⋯⋯⋯ to the nearest kg.   [26 , 24 , 25 , $\dfrac{76}{3}$]

(39) 3750 cm. = ⋯⋯⋯⋯ metre   [3.75 , 373 , 375000 , 37.5]

(40) The isosceles trapezium has ⋯⋯⋯⋯ line (s) of symmetry.   [3 , 2 , 1 , 4]

(41) The litre is the capacity of a vessel in the shape of a cube with edge length =
⋯⋯⋯⋯   [1 cm. , 10 cm. , 100 cm. , 1000 cm.]

(42) The probability of the impossible event = ⋯⋯⋯⋯   [zero , 1 , 0.5 , 0.3]

(43) $\dfrac{3}{4}$ of the day = ⋯⋯⋯⋯ minutes   [1080 , 180 , 100 , 1800]

(44) $\dfrac{1}{2}$ litre = ⋯⋯⋯⋯ cm^3.   [500 , 5000 , 50 , 50000]

(45) $96.58 \simeq$ ⋯⋯⋯⋯ to the nearest unit   [96 , 97 , 96.5 , 96.6]

(46) The decimal whose value is included between 0.3 and 0.4 is ⋯⋯⋯⋯

[0.41 , 0.31 , 0.13 , 0.4]

(47) Fifty six thousandth is written as = ⋯⋯⋯⋯   [0.56 , 0.65 , 0.065 , 0.056]

2 *Put the suitable symbol of [> , < , =]*

(1) $\dfrac{3}{4}$ hour ☐ 75 minutes.   **(2)** 5 tons ☐ 5000 gm.

(3) $4\dfrac{3}{4}$ pounds ☐ 475 piastres.   **(4)** 0.5 kg. ☐ 750 gm.

(5) 7850 ÷ 100 ☐ 78.5   **(6)** $\dfrac{1}{3}$ of the day ☐ 7 hours.

(7) 9800 millitre ☐ 9.8 litre.

(8) The probability of the impossible event ☐ the probability of the certain event.

(9) The number of lines of symmetry in the square ☐ the number of lines of
symmetry in the rectangle.

(10) The value of the digit (4) in the number 0.941 ☐ the value of the digit (2) in the
number 0.21

(11) The number of lines of symmetry of the square ☐ the number of lines of symmetry of the rhombus.

(12) 84 hours ☐ 5 days.

(13) 28.4 ☐ 2.84

(14) 5.7 + 1.4 ☐ 12.78 − 3.5

(15) 5400 piasters ☐ 54 pounds.

(16) 1.75 ☐ $1\frac{3}{4}$

(17) 35 x 10 ☐ 3 x 100

(18) 800 ÷ 100 ☐ 785 ÷ 10

(19) 7.9 + 2.3 ☐ 11.7 − 1.3

(20) The litre ☐ 100 millitre

(21) 100 gm. ☐ kg.

(22) 8780 kg. ☐ 9 ton

(23) 1.25 litre ☐ 9 ton

(24) 4 pounds ☐ 475 piasters.

3 *Complete*

(1) 159.5 + 375.3 ≃ ·············· (to the nearest hundred)

(2) 86.7 − 17.45 ≃ ·············· (to the nearest one decimal)

(3) 73641 ÷ 1000 ≃ ·············· (to the nearest 10)

(4) 9.467 = 9 + ·············· + 0.06 + ··············

(5) $8 - 3\frac{4}{5}$ = ·············· (to the nearest unit)

(6) 7 units and 5 thousandth = ··············

(7) $3\frac{1}{4}$ kg. = ·············· gm.

(8) 4750 millilitre = ·············· litre.

(9) $4\frac{3}{100}$ kg. = ·············· (a decimal number)

(10) 32749 − 9378 = ·············· (to the nearest thousand)

(11) The decimal 0.19 is included between ·············· and ··············

(12) 86.9 ≃ 90 to the nearest ·················

(13) 0.1 + ·············· = 1

(14) 32 days ≃ ·············· (to the nearest week)

(15) The two squares are congruent if the side length of one of them = ··············

(16) The probability that the sun rises from the East is ·············· event.

(17) The number 5.7 = 5 + ··············

(18) 5 tons = ·············· kg.

(19) 6198 ≃ ·············· (to the nearest ten)

(20) 8500 millilitre = ·············· litre.

(21) Sixty five and eight tenths is written as ··············

(22) 412 ÷ 1000 = ··············

(23) $\frac{3}{4} = \frac{\text{········}}{8} = \frac{9}{\text{········}}$

(24) 0.37 + 0.43 + ·············· = 1

(25) $2\frac{5}{7} = \frac{\text{·········}}{\text{········}}$

(26) $\frac{9}{5} = \frac{9 \times \text{·········}}{5 \times \text{········}} = 1.8$

(27) The two polygons are congruent if their corresponding sides are ·············· and their corresponding angles are ··············

(28) The number of lines of symmetry of the equilateral triangle = ··············

(29) $42.85 \div 10 =$ .... $\simeq$ .... (to the nearest one decimal)

(30) The rhombus is a .... figure , its sides are ....

(31) $1 - \dfrac{1}{5} \simeq$ .... (to the nearest unit)

(32) $\dfrac{77}{7} = \dfrac{.........}{.........} =$ ....

(33) In the opposite figure, the number of lines of symmetry equals = ...

(34) $10 , 9.6 , 9.2 ,$ .... , ...

(35) $0.6 - 0.275 =$ ....   **(36)** $9.8 - 4.3 =$ ....

(37) $58 \div 10 =$ ....   **(38)** $\dfrac{3}{4} = \dfrac{.........}{8}$

(39) 540 piasters = ... pounds.

(40) There are .... lines of symmetry in the square.

(41) The third of the day = ... hours.

(42) The value of the digit 7 in the number $123.579 =$ ....

(43) $1 = 0.4 +$ ....   **(44)** $93.82 \simeq$ .... to the nearest one decimal.

(45) Sixty five and eight hundredth is written as ....

(46) $3.2 , 3.4 , 3.6 ,$ ....   **(47)** The litre = ... millitre.

(48) The minute = ... seconds.

(49) The probability of appearing a head as throwing a metallic coin = ...

(50) The probability of the impossible event = ...

4 *Put the sign (✓) or (✗) opposite to the following statements :*

(1) It is possible that an acute angled triangle is congruent to a right angled triangle ( )

(2) $0.49 < 0.5$ ( )

(3) $1 = 0.25$ ( )

(4) The parallelogram has four lines of symmetry. ( )

(5) 4 units and 8 tenths $= 8.4$ ( )

(6) It is not enough that the two polygons are congruent if the corresponding sides are equal in length only. ( )

(7) The number 8500 is the approximation of the number 8532 to the nearest 1000 ( )

(8) The square has 4 lines of symmetry. ( )

(9) The fractional form of the number $5\dfrac{1}{4}$ is $\dfrac{10}{4}$ ( )

(10) Twenty nine thousandth is written as 0.029 ( )

(11) $0.37 = 0.7 + 0.30.$ ( )

(12) Seven and fifty three hundredth $= 53.7$ ( )

(13) $4.9 < 9 + 0.4$ ( )

(14) 9.7 litre $= 9.700$ decimetre cube. ( )

(15) 20, 17 , 14 , 11 is a pattern of decreasing by 3   ( )

(16) The rectangle has four lines of symmetry   ( )

(17) 2.5 days = 60 hours.   ( )

(18) 6 hundredths + 16 tenths = 6.22   ( )

(19) The value of the digit (3) in the number 72.435 = 0.30   ( )

(20) As throwing a die, then the probability of appearing a number more than 5 is impossible.   ( )

5 *Arrange ascendingly :*

[a] $(6\frac{1}{4}$, 6.63 , $6\frac{1}{2}$, 6.11)   **[b]** (33.12 , 33.02 , 30.8 , 30.196)

[c] (37 hours, 1.5 day, 2225 minutes)   **[d]** (4 litres, 4700 millitres, 4.5 dm^3.)

[e] (8750 kg., 9 ton , 870000 gm.)

6 *Find the result of the following :*

(1) $12.7 + 10.007 \simeq$ ··············   (to the nearest $\frac{1}{10}$)

(2) $52.46 – 2.731 =$ ··············   (to the nearest unit)

(3) $23456 \div 100 =$ ··············   (to the nearest 10)

(4) $\frac{3}{4} +$ ·············· $= 1$

(5) $96.8 – 62.31 \simeq$ ··············   (to the nearest $\frac{1}{10}$)

(6) $42819 \div 1000 \simeq$ ··············   (to the nearest unit)

7 *Answer the following :*

(1) A man bought 8 tons of iron for building a house. If the price of one kg. of iron is 4 pounds.
Find : a. The price of one ton of iron.
       b. The price of the quantity of iron which the man bought.

(2) If Hosam has 425 pounds, and his sister Hoda has 98.75 pounds.
Find the difference between them.
The difference between what they have = ·············· – ·············· = ·············· pounds.

(3) You have identical cards. You wrote the numbers (1 , 4 , 6 , 8 and 10) on them. If you draw one of these cards blindely. What is the probability that the card carries a number between (5 and 9) ?
Complete : The probability = ··············

(4) First : A road is of length 55 km, 25.78 km. of it are paved. How long is the remained part without paving ?

Second : A box contains 5 red balls, 3 blue balls 7 green balls, equal in size. If one ball is drawn blindely.

Answer the following questions :

a. What is the probability that the drawn ball is blue ?

b. What is the probability that the drawn ball is not red ?

c. What is the probability that the drawn ball is green ?

d. What is the probability that the drawn ball is red or blue ?

8 **(1)** The following table shows the number of pupils participating in a school activities :

The grade	Sport	Art	Culture
Number of pupils	40	20	30

Represent these data by histogram.

(2) The following table shows the number of pupils in the first four grades in a primary school :

The grade	First	Second	Third	Fourth
Number of pupils	80	70	100	70

Represent these data by bar histogram.

(3) The following table shows the marks of some school subjects of two girl pupils in a school :

Complete representation of these data by double bars, showing that in your answer sheet.

Subject / The pupil	Math	Science	Social studies	English
First	30	25	30	20
Second	20	20	25	15

(4) The following table shows the saved money of Hosam and Mohamed in pounds within 4 weeks successive weeks.

Week / Name	First	Second	Third	Fourth
Hosam	9	4	5	10
Mohamed	7	8	12	3

Represent these data by double bar charts.

(5) The following table shows the number of pupils in the first four grades in a primary school.

The grade	First	Second	Third	Fourth
Number of pupils	55	65	40	70

Represent these data by histogram.

(6) Draw the lines of symmetry of each of the following shapes.

Test (1)

1 *Put the sign (✓) or the sign (✗) opposite the following statements :*

(1) $0.4 = 0.7 - 0.30$ ( )

(2) Six and forty three hundredth $= 53.4$ ( )

(3) $3.9 < 9 + 0.3$ ( )

(4) 8.7 litre $= 8.700$ dm^3. ( )

(5) 20 , 16 , 12 , 8 is a pattern decreasing by 4 ( )

(6) The triangle has three lines of symmetry. ( )

2 *Complete :*

(1) The decimal 2.29 is included between ·········· and ··········

(2) $89.9 \simeq 90$ to the nearest ··········

(3) $0.2 + ·········· = 1$

(4) 34 days $\simeq$ ·········· to the nearest week.

(5) The two squares are congruent if the side length of one of them $=$ ··········

(6) The probability that the sun rises from the west is ·········· event.

3 *Choose the correct answer from those between brackets :*

(1) The value of the digit (6) in the number 18.36 is ·········· (6 , 60 , 0.06 , 600)

(2) $5 \dfrac{7}{100} =$ ·········· (5.07 , 5.7 , 5.007 , 7.05)

(3) The quarter of a day $=$ ·········· hours (12 , 3 , 6 , 15)

(4) 3.5 ton $=$ ·········· kg. (35 , 34 , 3500 , 5300)

(5) $\dfrac{3}{4} =$ ·········· (0.75 , 0.8 , 0.0755 , 0.25)

(6) The probability of the certain event $=$ ·········· (zero , 0.5 , 1 , 2)

4 **First : Find the result :**

(a) $95.7 - 62.31 \simeq$ ·········· (to the nearest $\dfrac{1}{10}$)

(b) $24819 \div 1000 \simeq$ ·········· (to the nearest unit)

Second : A man bought 12 tons of iron to build a house. If the price of one kg. of iron is 4 pounds. Find :

(a) the price of one ton of iron.

(b) the price of the quantity of iron which the man bought.

Third : Represent the data of the following table by histogram :

The activity	Sport	Art	Culture
Number of pupils	30	50	70

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Test (2)

1 *Complete the following :*

(1) The number $4.7 = 0.7 +$ ··········

(2) 2 ton = ·········· kg.

(3) $7345 \simeq$ ·········· to the nearest 10

(4) 750 000 millilitre = ·········· litre

(5) Forty two and three tenths is written as ··········

(6) $214 \div 100 =$ ··········

2 *Put the suitable sign ($>$, $<$ or $=$) in the blanks :*

(1) The number of line of symmetry of the square ·········· the number of lines of symmetry of the rhombus.

(2) 48 hours ·········· 3 days.

(3) 27.4 ·········· 2.74

(4) $5.7 + 1.44$ ·········· $5.7 - 3.4$

(5) The probability of the certain event ·········· the probability of the impossible event.

(6) 3600 piastres ·········· 36 pounds.

3 *Choose the correct answer from those between brackets :*

(1) $457\frac{1}{5} \simeq$ ·········· to the nearest whole number.　　　(457 , 458 , 455 , 659)

(2) The probability of appearing a head as throwing a metallic coin = ··········

$$(1 \ , \ \frac{1}{2} \ , \ \text{zero} \ , \ \frac{2}{3})$$

(3) The number $\frac{18}{4} =$ ··········　　　$(4\frac{1}{2} \ , \ 4\frac{2}{3} \ , \ 4\frac{3}{5} \ , \ 4\frac{2}{5})$

(4) The value of the digit (4) in the number 0.41 is ··········

　　　　　　　　　　　　　　　　　　　　　　(0.04 , 0.4 , 4 , 40)

(5) One day = ·········· minutes.　　　　　　(3600 , 60 , 24 , 1440)

(6) The number of lines of symmetry of the rectangle is ·········· (zero , 4 , 2 , 3)

4 If Amr has 322 pounds and his brother Mohamed has 85.75 pounds.
Find the difference between what they have.

5 **First** : Write three decimal numbers included between (17 and 18).

Second : The following table shows the number of pupils in the three grades in a preparatory school.

The grade	First	Second	Third
Number of pupils	30	35	40

Represent these data by histogram.

Test (3)

1 *Complete the following :*

(1) 5 litres = ·········· centimetre cube.

(2) 7 ton = ·········· kg.

(3) 6.8 = 0.8 + ··········

(4) $4\frac{3}{10}$ = ·········· (decimal number)

(5) 74.36 ≃ ·········· (to the nearest tenth.)

(6) A box contains 4 blue balls , two red balls and 3 green balls , the probability of drawing a blue ball is ··········

2 *Complete by using one of the signs (> or < or =) :*

(1) 750 gm ·········· $\frac{1}{2}$ kg.

(2) 48 hours ·········· two days.

(3) 86.45 ·········· 84.65

(4) $5\frac{3}{4}$ pounds ·········· 575 piasters.

(5) 675 ÷ 100 ·········· 0.675

(6) The number of lines of symmetry of the square ·········· the number of lines of symmetry of the circle.

3 *Choose the correct answer from those between brackets :*

(1) 7342 ≃ 7300 to the nearest ··········

(ten , hundred , thousand , ten thousands)

(2) One hundred , fifty eight and seven tenth, is written ··········

(158.7 , 15.87 , 1.587)

(3) The value of the digit (3) in the number 6.135 is ··········

(0.3 , 0.03 , 0.003)

(4) The decimal form of the fraction $\frac{317}{100}$ is ··········   (31.7 , 3.17 , 0.317)

(5) The digit of tenths in the number 23.69 is ··········   (9 , 6 , 3 , 2)

4 *The fourth question :*

(1) Arrange the following numbers ascendingly. 0.45 , 5.4 , 4.5 , 0.54

(2) Mazen has 35 pounds. He bought a ball for 9.75 pounds and a book for 5.25 pounds. What is the remained with Mazen ?

5 The following table shows the number of hours of studying the lessons by Waleed and Hesham in five days.
Represent these data by double bars.

The day / Name	Sat.	Sun.	Mon.	Tue.	Wed.
Waleed	4	4	3	4	5
Hesham	3	2	1	2	3

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Test (4)

1 *Choose the correct answer from those between brackets :*
(1) The capacity of a cup of tea = ············ (3 litres *or* 25 millilitres *or* 200 millilitres)
(2) 29.095 ≃ ············ to the nearest tenth. (29.1 *or* 30 *or* 29.11)
(3) The square has ············ lines of symmetry. (2 *or* 4 *or* 6)
(4) 96 hours = ············ (3 days *or* two days *or* 4 days)
(5) The weight of a book which I carry = ············ (3 tons *or* 300 gm. *or* 3 kg.)

2 *Complete the following :*
(1) 831.56 ≃ ············ (to the nearest tenth)

(2) $56 \dfrac{7}{1000}$ in the decimal from = ············

(3) The litre = ············ millilitres.

(4) The two polygons are congruent if their corresponding ············ are equal in length and their corresponding ············ are equal in measure.
(5) The isosceles triangle has ············ line of symmetry.

3 *Put the suitable sign (≥ or ≤ or =) :*
(1) 550 millilitre ············ $\dfrac{3}{4}$ litre.

(2) 608 ÷ 10 ············ 608 x10
(3) 6205 tons ············ 62050 gms

(4) $\dfrac{3}{5}$ ············ 0.6

(5) 6.9 + 2.1 ············ 11.7 – 1.7
(6) 1.08 ············ 1.8

4 (a) *Find the result :*
    (1) 5.98 + 10.237 = ············   (2) 14.017 – 4.97 = ············
(b) Hanaa has 500 pounds , she wants to buy a pair of shoes for 99.8 pounds and a bag for 45.75 pounds , and a dress for 70.25 pounds. Is the sum of money with Hanaa is enough to buy these things ?
How many pounds are remained ?

5 (a) A box contains 8 red balls , two white balls and 5 yellow balls. what is the probability that the drawn ball is white ?
(b) The following table shows the number of travellers in the first four carriage of a train.

Carriage	First	Second	Third	Fourth
Number of travellers	50	60	95	70

Represent these data by histogram.

$$\boxed{\textit{Test (5)}}$$

1 *Complete the following statements :*

(1) ············· is one of units of measuring capacity.

(2) the milliltre = ············· litre.

(3) "It is sure that the sun rises at night" this is ············· event.

(4) $\dfrac{\cdots}{16} = \dfrac{3}{4}$

(5) The probability of appearing of an even prime number as throwing a fair die once = ·············

2 *Choose the correct answer :*

(1) 0.017 is less than ·············   (0.051 ، 0.014 ، 0.009)

(2) The place value of the digit (4) in the number 8.4 is ·············

(units ، tens ، tenth ، hundred)

(3) Five and six tenths = ·············   (5.6 ، 6.5 ، 0.65 ، 0.065)

(4) The decimal fraction which is included between (0.62 and 0.63) is ·············

(0.645 ، 0.635 ، 0.625 ، 0.615)

(5) 9085 ≃ 9000 to the nearest ·············   (10 ، 100 ، 1000 ، 10000)

(6) $\dfrac{3}{10} + 0.8 =$ ·············   (0.38 ، 3.8 ، 0.11 ، 1.1)

3 (a) Mai bought a group of notebooks for 32.75 pounds and a book for 17.58 pounds. If she has a bank note of 100 pounds what is the remainder with her ?

(b) A box contains 5 blue balls , two red balls and 3 green balls. If a ball is drawn blindly. Complete.

(1) the probability that the ball is red.

(2) the probability that the ball is green.

4 (a) Seif El Din has 12.89 pounds and his sister Sama has 3.19 pounds. Find the difference between what they have to the nearest unit.

(b) The following table shows the number of participants in the school activities in a school.

Represent these data by histogram.

The activity	sport	Social	Art
Number of pupils	16	12	14

5 *Complete :*

(1) The angles of the rectangle are ············· and the measure of each of them is ·············°

(2) The isosceles trapezium has ············· line of symmetry.

(3) The number of the diagonals of a rhombus = ·············

(4) The two squares are congruent if their side lengths are ·············

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$$\boxed{\textit{Test (6)}}$$

1 *Choose the correct answer form those between brackets :*

(1) $236 \simeq$ ············ to the nearest ten.　　　　　(230 *or* 240 *or* 250 *or* 260)

(2) The litre = ············ millilitre.　　　　　(10 *or* 100 *or* 1000 *or* 10000)

(3) $5470 \div 100 =$ ············　　　　　(54.7 *or* 5.47 *or* 547 *or* 5470)

(4) $7\dfrac{3}{5} =$ ············　　　　　(7.3 *or* 7.6 *or* 7.5 *or* 5.3)

(5) $4\dfrac{7}{10} + 3.07 =$ ············　　　　　(7.14 *or* 7.4 *or* 7.77 *or* 8.14)

2 *Complete the following :*

(1) 1 kg. = ············ gm.

(2) $4275 \simeq$ ············ to the nearest thousand.

(3) $\dfrac{15}{....} = \dfrac{5}{7}$

(4) The square has ············ lines of symmetry.

(5) $98.54 \simeq$ ············　　　　　(to the nearest tenth)

3 (a) *Find the result of the following :*

(1) $34.85 + 37.63 =$ ············ $\simeq$ ············ to the nearest unit.

(2) $87852 - 25764 =$ ············ $\simeq$ ············ to the nearest hundred.

(3) $\dfrac{1}{4} + \dfrac{3}{4} =$ ············

(b) Yousef has 48.5 pounds. He bought a shirt for 36.75 pounds. Calculate the remainder with him.

4 (a) Mohamed bought a group of pens for 45.89 pounds and some notebooks for 17.18 pounds. If he has 120 pounds. Find the remainder with him.

(b) In an experiment of throwing a fair die once and observing the upper face. Find the probability of getting a prime number.

5 (a) *Put the suitable sign (> , < or =) :*

(1) $2\dfrac{1}{3}$ hours ············ 150 minutes.

(2) 1.75 ············ $1\dfrac{3}{4}$

(3) 35×10 ············ 3×100

(b) The following table shows the number of studying hours of each of Abd Allah and Omer in some days of the week.

The day / Name	Sat.	Sun.	Mon.
Abd allah	3	4	6
Omer	4	5	4

Represent these data by double bars.

Test (7)

1 *Choose the correct answer from those between brackets :*

(1) The equilateral triangle has ·········· line of symmetry. $\qquad$ (2 , 1 , 3 , 4)

(2) $\dfrac{2}{5} + \dfrac{3}{7} =$ ·········· $\qquad$ ($\dfrac{5}{12}$, $\dfrac{29}{35}$, $\dfrac{6}{35}$)

(3) $49.57 \div 10 =$ ·········· $\qquad$ (4.957 , 47.49 , 495.7 , 4975)

(4) 530 , 533 , 536 this pattern is increasing by ·········· $\qquad$ (3 , 4 , 5 , 543)

(5) $11.25 + 10.15 =$ ·········· $\qquad$ (2125 , 22 , 15 , 21.40)

2 (a) *Find the result of the following :*

(1) $5.63 + 11.25 =$ ·········· $\simeq$ ·········· to the nearest unit.

(2) $42.59 - 22.537 =$ ·········· $\simeq$ ·········· to the nearest one decimal.

(3) $\dfrac{3}{8} - \dfrac{1}{8} =$ ·········· $\qquad$ (4) $\dfrac{45}{55} = \dfrac{.......}{.......}$

(b) Ahmed has 48 pounds. He bought a calculator for 5.75 pounds and painting case for 7.25 pounds. How much money is remained with him ?

3 (a) Ahmed bought a number of electric lamps for 62.5 pounds. If the price of one lamp is 2.5 pounds. How many electric lamp did Ahmed buy ?

(b) Find the probability of getting a tail as throwing a fair metallic coin once.

4 *Complete the following statements :*

(1) The number of lines of symmetry of the rectangle is ··········

(2) 57 days $\simeq$ ·········· to the nearest week.

(3) The probability that the sun rises from west = ··········

(4) $89.69 - 12.235 =$ ·········· $\qquad$ (5) $89.568 + 13.25 =$ ··········

(6) $\dfrac{3}{10} + \dfrac{2}{5}$

5 The following table shows the number of absentees pupils from the 4th grade and 5th grade in a school within 4 days :

The day / Name	1st	2nd	3rd	4th
Fourth	8	7	6	5
Fifth	6	4	8	5

Represent these data by double bars.

Test (8)

1 *Choose the correct answer form those between brackets :*

(1) The capacity of a bottle of mineral water = ...

(1 litre *or* 25 millilitre *or* 10 millilitre)

(2) $45.095 \simeq$ .... to the nearest tenth.　　　　(45.1 *or* 46 *or* 45.11)

(3) The rhombus has .... lines of symmetry.　　　(2 *or* 3 *or* 4 *or* 6)

(4) 48 hours = ...　　　　　　　　　　(3 day *or* two days *or* 4 days)

(5) The weight of my notebook which I carry = ... (100 gm. *or* 10 gm. *or* $\frac{1}{2}$ kg.)

2 *Complete the following :*

(1) $246.56 \simeq$ .... to the nearest one decimal.

(2) $67 \dfrac{7}{1000}$ using the decimal point = ...

(3) The litre = ... millilitre.

(4) The two polygons are congruent if the corresponding .... are equal in length and corresponding ....

(5) The equilateral triangle has .... lines of symmetry.

3 *Put the suitable relation (> ، < or =) :*

(1) 750 millilitre = ... 3 litres.

(2) $518 \div 10$ .... 518×10

(3) 3579 ton .... 5379000 gm.

(4) $\dfrac{4}{5}$ 0.06

(5) $6.5 + 2.5$ .... $12.8 - 3.8$

(6) 2.09 .... 2.9

4 **(a)** *Find the result :*

(1) $15.908 + 9.457 =$ ....

(2) $15.077 - 9.67 =$ ....

(b) Souad has 3500 pounds , she wanted to buy a computer for 1999.95 pounds and a printer for 445.50 pounds and a table for the computer for 325.5 pounds. Is the sum of money enough to buy these things ? What is the remainder ?

5 **(a)** A box contains 6 red balls , 5 white balls and 4 green balls. What is the probability that the drawn ball is red ?

(b) The following table represents the number of pupils in the four grades in a primary school :

Grades	First	Second	Third	Fourth
Number of pupils	40	50	85	60

Represent these data by histogram.

Test (9)

1 *Complete the following statements :*

(1) .... is one of the units of measuring length.

(2) 1 gm. = ... kg.

(3) It is sure that the moon appears at night this is .... event.

(4) $\dfrac{.....}{20} = \dfrac{3}{4}$

(5) The probability of appearing an odd number as throwing a fair die once = ...

2 *Choose the correct answer :*

(1) 0.018 is less than ....   (0.051 , 0.014 , 0.009)

(2) The place value of the digit (5) in the number 9.5 is ....

            (units , tens , tenth)

(3) Five and seven tenths = ...   (5.7 , 7.5 , 0.75)

(4) The decimal fraction which is included between (0.63 , 0.64) is ....

            (0.645 , 0.635 , 0.625)

(5) 9079 $\simeq$ 9000 to the nearest ....   (100 , 1000 , 10000)

(6) $\dfrac{4}{10} + 0.7 = $ ....   (3.8 , 0.11 , 1.1)

3 **First :** Omnia bought a group of toys for 37.75 pounds and a ball for 27.58 pounds. If she had a bank note of 100 pound. What is the remainder with her ?

Second : A box contains 4 blue balls, 2 red and 5 green balls. If a ball is drawn blindly.

Complete :

[a] The probability that the ball is red = ...

[b] The probability that the ball is green = ...

4 **First :** Ahmed has 32.89 pounds and his sister Engi has 15.19 pounds. Find the difference between what they have to the nearest unit.

Second : The following table shows the number of participants in the school activities in a school

Activity	Sport	Social	Art
number of pupils	6	5	4

Represent these data by hisogram

5 **Complete the following :**

(1) The two polygons are congruent if their corresponding sides are .... and the corresponding .... are equal in measure.

(2) All measures of the angles of the equilateral triangle are .... and the measure of each of them = ...

(3) The isosceles triangle has .... line of symmetry.

(4) The isosceles trapezium has .... line of symmetry.

(5) The circle has .... number of lines of symmetry.

Test (10)

1 *Choose the correct answer from those between brackets :*

(1) $456 \simeq$ ·········· to the nearest ten. $\hspace{2cm}$ (450 , 460 , 540 , 550)

(2) The litre = ·········· millilitre. $\hspace{2cm}$ (10 , 100 , 1000 , 10000)

(3) $5670 \div 100 = $ ·········· $\hspace{3cm}$ (56.7 , 5.67 , 567 , 5670)

(4) $8 \dfrac{4}{5} = $ ·········· $\hspace{4cm}$ (8.4 , 8.8 , 8.5 , 5.4)

(5) $4 \dfrac{8}{10} + 4.08 = $ ·········· $\hspace{2.5cm}$ (8.14 , 8.4 , 8.88 , 8.16)

2 Complete the following :

(1) 1 kg. = ·········· gm.

(2) $8642 \simeq$ ·········· to the nearest thousand.

(3) $\dfrac{25}{....} = \dfrac{5}{7}$

(4) The square has ·········· lines of symmetry.

(1) $87.34 \simeq$ ·········· to the nearest one decimal.

3 Find the result of the following :

First :

(1) $45.85 + 48.63 = $ ·········· $\simeq$ ·········· $\hspace{2cm}$ (to the nearest unit)

(2) $98963 - 36875 = $ ·········· $\simeq$ ·········· $\hspace{2cm}$ (to the nearest 100)

(3) $\dfrac{1}{5} + \dfrac{4}{5} = $ ··········

Second : Emad has 98.5 pounds. He bought a shirt for 76.75 pounds. Calculate the

$\hspace{2cm}$ remainder with him.

المواصفـات الفنيــة:

مقــاس الكتــاب:	$\frac{1}{8}$ (٨٢ × ٥٧) سم
طبــع المتــن:	٤ لون
طبــع الغــلاف:	٤ لون
ورق المتــن:	٨٠ جم أبيض
ورق الغــلاف:	٢٠٠ جم كوشيه
عدد الصفحات بالغلاف:	١٢٨ صفحة