

Unit 1**The set of Natural numbers****The set of:**

Natural numbers	$N = \{0, 1, 2, 3, 4, 5, 6, 7, 8, \dots\}$
Counting numbers	$C = \{1, 2, 3, 4, 5, 6, 7, 8, \dots\}$
Even numbers	$E = \{0, 2, 4, 6, 8, 10, 12, 14, \dots\}$
Odd numbers	$O = \{1, 3, 5, 7, 9, 11, 13, 15, \dots\}$
Prim numbers	$P = \{2, 3, 5, 7, 11, 13, 17, 19, \dots\}$

1) Complete using \in , \notin , \subset or $\not\subset$:

- | | |
|--------------------------|-------------------------------|
| a) 0 N | e) $\{1, 1.5, 2, 3\}$ N |
| b) 1.2 N | f) $\{2, 5, 7\}$ N |
| c) $\frac{8}{4}$ N | g) $\frac{3}{5}$ N |
| d) \emptyset N | h) 100 N |

2) Complete:

- a) The smallest natural number is
- b) The smallest counting number is
- c) The set of natural numbers which are less than 6 is
.....
- d) The set of Natural numbers which are less than or equal 8 is
.....
- e) The set of natural numbers between 3 and 7 is
.....

3) Represent the following set on the number line:

a) $\{3, 4, 5, 6\}$

b) The set of natural numbers greater than 5

c) $\{0, 2, 4, \dots\}$

d) $\{3, 5, 7, \dots\}$

4) Write the following sets using the listing method then represent them on the number line:

a) $X = \{ a : a \in \mathbb{N}, a \leq 6 \}$

.....

b) $Y = \{ x : x \in \mathbb{N}, x > 5 \}$

.....

c) $Z = \{ x : x \in \mathbb{N}, 1 \leq x \leq 5 \}$

.....

d) $A = \{ a : a \in \mathbb{N}, 2 < x < 8 \}$

.....

e) $B = \{ a : a \in \mathbb{N}, 6 \geq a > 2 \}$

.....

f) $C = \{ a : a \in \mathbb{N}, a \geq 4 \}$

.....

g) $F = \{ x : x \in \mathbb{N}, x \leq 4 \}$

.....

5) If a , b and c are natural numbers where $a > b$, $a > c$ and $b < c$

Represent these numbers on the number line.

.....

6) If k , L , M and N are four natural numbers where $M > N$, $k < M$ and $N < K$ and $L < N$. Represent these numbers on the number line.

.....

7) If the greatest number of three consecutive natural numbers is $x+6$

Find the other two numbers

8) If the greatest number of five consecutive even natural numbers is $x+10$

Find the other four numbers

9) If the middle number of 3 successive natural odd numbers is Z

Find the other two numbers

10) Complete:

a) $E \cup O = \dots\dots$

b) $E \cap O = \dots\dots$

c) $E \cap P = \dots\dots$

d) $N \cap P = \dots\dots$, $N \cap O = \dots\dots$, $N \cap E = \dots\dots$

e) $N \cup P = \dots\dots$, $N \cup O = \dots\dots$, $N \cup E = \dots\dots$

f) $N - E = \dots\dots$, $N - O = \dots\dots$

$O - E = \dots\dots$, $E - O = \dots\dots$

g) The smallest prime odd number is

h) The smallest odd number is

Operations on Natural numbers

Addition in N:

1) Complete:

a) The additive neutral element is

b) $15 + (23 + \dots) = (15 + \dots) + 17$ (..... Property)

c) $99 + \dots = 99$ (..... element)

d) $73 + \dots = 27 + \dots$ (..... Property)

e) $120 + 80 = \dots \in \mathbb{N}$ (..... Property)

2) Use the properties of addition in N to find the result of each of the following:

a) $536 + 280 + 464$

.....

.....

.....

b) $388 + 749 + 612 + 251$

.....

.....

.....

Subtraction in N:

1) Make a line graph for the following:

a) $6 - 4$

b) $9 - 5 - 1$

2) Complete using \in or \notin :

a) $8 - 4$ N

b) $0 - 1$ N

c) $3 - 5$ N

d) $10 - 7$ N

Multiplication in N:

1) Complete:

a) The multiplicative neutral element is

b) $3 \times (\dots \times 9) = (\dots \times 9) \times \dots$ (..... Property)

c) $\dots \times 15 = 15$ (..... element)

d) $24 \times \dots = 32 \times \dots$ (..... Property)

e) $50 \times 10 = \dots \in N$ (..... Property)

$$\begin{aligned}
 \text{f) } 4 \times 28 \times 25 &= 28 \times \dots \times 25 && (\dots \text{ Property}) \\
 &= 28 \times (25 \times \dots) && (\dots \text{ Property}) \\
 &= 28 \times \dots = \dots
 \end{aligned}$$

$$\begin{aligned}
 \text{g) } 6 \times 102 &= 6 \times (\dots + \dots) \\
 &= 6 \times \dots + 6 \times \dots && (\dots \text{ Property}) \\
 &= \dots + \dots = \dots
 \end{aligned}$$

2) Use the properties of multiplication in N to find the result of each of the following:

a) $2 \times 13 \times 5$

.....

b) $8 \times 19 \times 125$

.....

c) $4 \times 6 \times 25 \times 9$

.....

d) $20 \times 7 \times 50 \times 3$

.....

3) Use the distributive property to find the result of each of the following:

a) 26×101

.....
.....
.....

b) 35×1004

.....
.....
.....

c) $(97+13) \times 56$

.....
.....
.....

d) 48×9

.....
.....
.....

e) 15×346

.....
.....
.....

f) $8 \times (195+15)$

.....
.....
.....

4) Use the properties of multiplication in N to find the result:

a) $32 \times 64 + 32 \times 36$

b) $15 \times 45 + 15 \times 55$

c) $47 \times 7 - 37 \times 7$

d) $16 \times 999 + 16$

e) $37 \times 40 + 37 \times 61 - 37$

Division in N:

1) Find the result:

a) $\frac{4 + 8}{60 \div 5}$

b) $\frac{30 \div 15}{9 - 9}$

2) Complete using \in or \notin :

a) $48 \div 6 \dots\dots\dots N$

b) $9 \div 2 \dots\dots\dots N$

c) $\frac{3-3}{7+8} \dots\dots\dots N$

d) $5 \div 0 \dots\dots\dots N$

Numerical pattern:**1) Complete in the same pattern:**

a) 5, 55, 555, ,

b) 1, 3, 5, ,

c) 2, 3, 5, 8, ,

d) 4, 9, 14, 19, ,

e) 2, 4, 8, ,

f) 1, 5, 25, ,

g) 100, 90, 81, 73, ,

h) 1, 4, 9, 16, ,

i) 1, 1, 2, 3, 5, 8, ,

2) What is the tenth term of the sequence?

a) 1, 3, 6, 10, 15,

b) 1, 4, 9, 16,

Unit 2**Equations****1) Translate into symbolic expression:**

- a) Twice the number x
- b) Add 7 to the number y
- c) Subtract 5 from the number z
- d) Multiply 4 by the number k
- e) Divide the number L by 3
- f) Add 6 to the 3 times of a number
- g) Subtract 1 from the half of a number
- h) Four more than a number X
- i) Eight less than a number X
- j) A number M is subtracted from 15
- k) Multiply a number F by 6 then subtract 4 from the result
- l) Divide a number L by 4 then add 7 to the Quotient
- m) Twice of a number subtracted 8 from it

2) Complete:

- a) Ahmed is x years old then his age after 3 years is
- b) A square of side length y then its perimeter is
- c) Nada bought 3 pens for L.E x each and 5 note books for L.E y each.
Then she paid
- d) The perimeter of a rectangle is 30 cm if its length is x cm, then its width is
.....

- e) The sum of two numbers is 9 if one of them is m then the other number is
- f) The difference between 2 numbers is 9 if the smaller number is x then the greater number is
- g) The difference between 2 numbers is 8 if the greater number is y then the smaller number is
-

3) Write the mathematical relation:

- 1) If the price of one book = L.E 5,

The number of books is x

The total price of books is y

The mathematical relation is

- 2) If the base of an isosceles triangle = 7 cm , $AB=AC=L$ cm

Then the perimeter is

$P=.....$

- 3) If the price of one meal is 20 pounds

The delivery service = 5 pounds for any number of meals

The number of meals is x

Total price is Y

The mathematical relation is

- 4) If the side length of an equilateral triangle is L Then the perimeter is

$P=.....$

4) Solve the following equations:

a) $x + 5 = 13$

.....
.....
.....

b) $y - 7 = 20$

.....
.....
.....

c) $10 - x = 4$

.....
.....
.....

d) $2x + 5 = 35$

.....
.....
.....

e) $3x = 27$

.....
.....
.....

f) $7x - 7 = 21$

.....
.....
.....

g) $\frac{1}{4}y = 3$

.....
.....
.....

h) $\frac{1}{3}y + 6 = 7$

.....
.....
.....

5) Translate each verbal statement into an equation:

a) A number if added to 6 the sum is 10

.....

b) If 3 is subtracted from a number produces 25

.....

c) If 7 is subtracted from twice of a number then the result is 15

.....

6) Solve the following equations:a) $37 + x = 11 + 37$ b) $6 \times 79 = (y \times 9) + (y \times 70)$ c) $26x = 7 \times 26$ d) $783 = x + (8 \times 10) + (7 \times 100)$ e) $(y+5) \times 8 = 8 \times 9$ f) $x \times 5 + x \times 60 = 65 \times 4$ 7) If $y = 3x$ is a mathematical relation between x and y, then complete the table:

x	3	0	.....	7	5
y	.....	.....	27	.....	.....

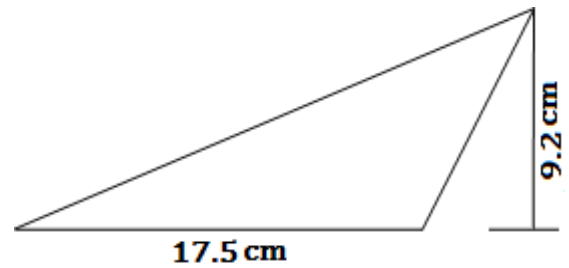
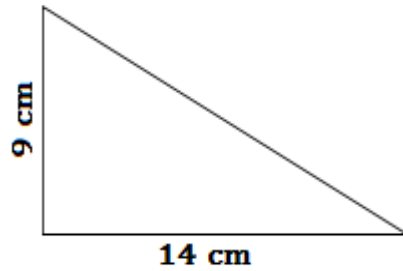
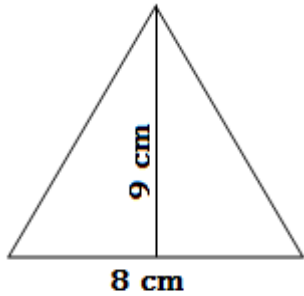
8) If $y = 5x-2$ is a mathematical relation between x and y, then complete the table:

x	1	2	.....	4	5
y	.....	.....	13	.....	.....

Unit 3:

Area and its units

1) Find the area of the following triangles:



.....

.....

.....

.....

.....

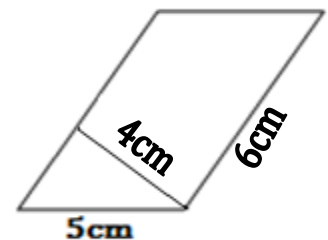
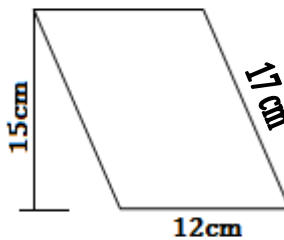
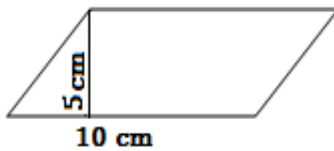
.....

2) Calculate the area of an equilateral triangle if its perimeter is 21 cm and its height is 4 cm

.....

.....

3) Find the area *the following* parallelograms:



.....

.....

.....

.....

.....

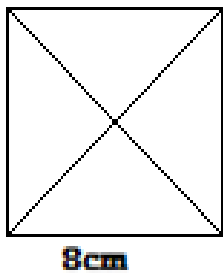
.....

4) Which is greater in area a parallelogram of base 4 cm and height 5 cm or a triangle of base 8 cm and height 3cm?

.....

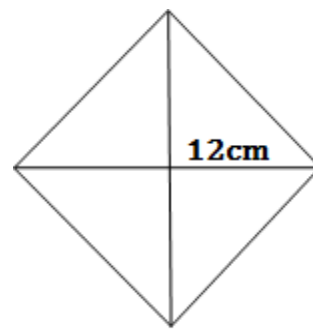
.....

5) Find the area *the following* squares:



.....

.....



.....

.....

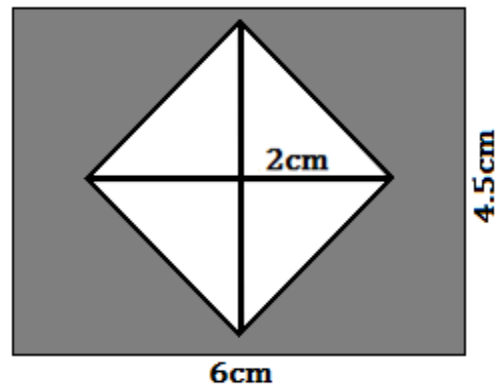
6) Find the area of the coloured surface:

.....

.....

.....

.....



7) A square of diagonal 18 cm. Find its area.

.....

8) A square of area 32 cm^2 . Find the length of its diagonal.

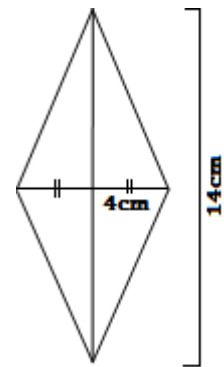
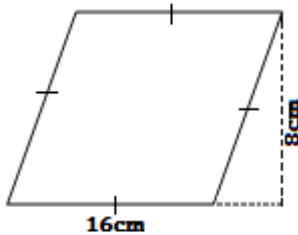
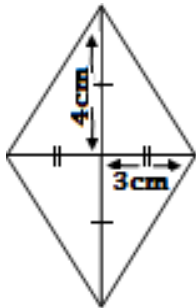
.....

9) A square of side length 6 cm, its area is equal to the area of a rhombus if the length of one of its diagonals is 9 cm. Find the length of the other diagonal.

.....

.....

10) Find the area of each rhombus:



.....

.....

.....

.....

.....

.....

11) Find the area of a rhombus of diagonals 8 cm and 6 cm

.....

12) Find the area of a rhombus of side length 12 cm and height 3 cm

.....

13) If the side length of a rhombus is 6 cm, its height is 4 cm and the length of one of its diagonals is 12m. Find the length of the other diagonal

.....

.....

14) Which is greater in area a parallelogram of base length 7cm and height 5 cm or a rhombus of side length 8cm and height 4cm?

.....

.....

15) Find the circumference of the following circles ($\pi = \frac{22}{7}$):

a) $r = 14$ cm

b) $d = 21$ cm

16) Find the circumference of the following circles to the nearest tenth ($\pi = 3.14$):

a) $r = 4.9$ cm

b) $d = 5.6$ cm

17) A circle of circumference 22cm find its diameter ($\pi = \frac{22}{7}$)

.....

18) Find the difference between the circumferences of two circles the first of diameter 28 cm and the second of radius 7cm.

.....

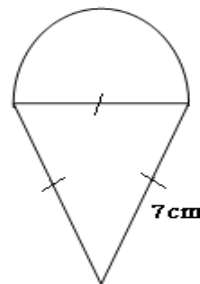
.....

.....

19) Calculate the perimeter of the opposite figure where ($\pi = \frac{22}{7}$)

.....

.....



Unit 4:

Geometric transformation

1) In Cartesian co-ordinate plane
from the following figure :

a) Complete:

A (..... ,)

B (..... ,)

C (..... ,)

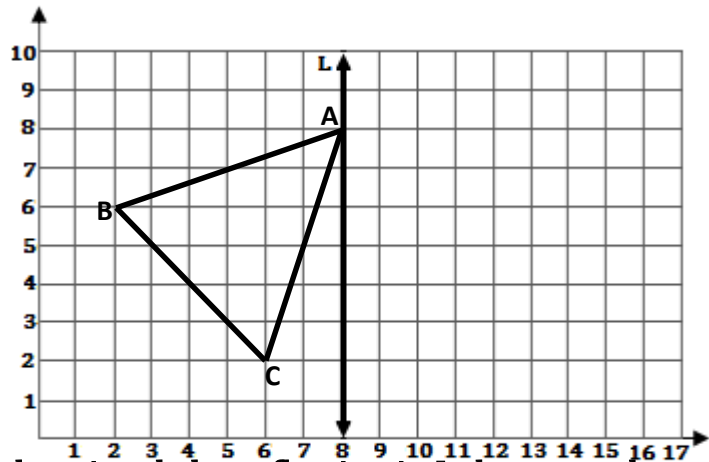
b) If L is the axis of reflection of

the triangle ABC , Find the image of the triangle by reflection in L then complete:

The image of A by reflection in L is A` (..... ,)

The image of B by reflection in L is B` (..... ,)

The image of C by reflection in L is C` (..... ,)



2) In Cartesian co-ordinate plane
from the following figure :

a) Complete:

A (..... ,)

B (..... ,)

C (..... ,)

D (..... ,)

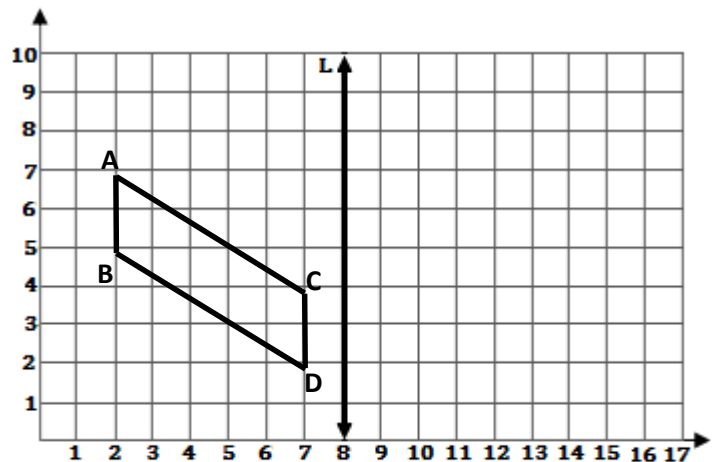
b) If L is the axis of reflection of the parallelogram ABCD , Find the image of the parallelogram by reflection in L then complete:

The image of A by reflection in L is A` (..... ,)

The image of B by reflection in L is B` (..... ,)

The image of C by reflection in L is C` (..... ,)

The image of D by reflection in L is D` (..... ,)



3) In Cartesian co-ordinate plane
from the following figure :

a) Complete:

A (..... ,)

B (..... ,)

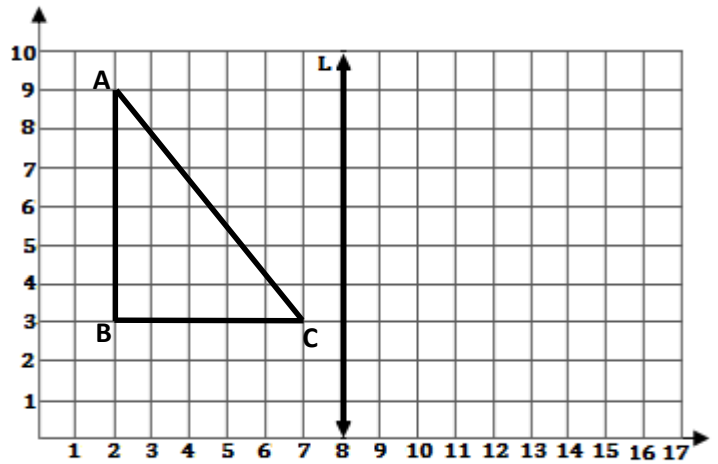
C (..... ,)

b) If L is the axis of reflection of the triangle ABC , Find the image of the triangle by reflection in L then complete:

The image of A by reflection in L is A` (..... ,)

The image of B by reflection in L is B` (..... ,)

The image of C by reflection in L is C` (..... ,)



4) In Cartesian co-ordinate plane
from the following figure :

a) Complete:

A (..... ,)

B (..... ,)

C (..... ,)

D (..... ,)

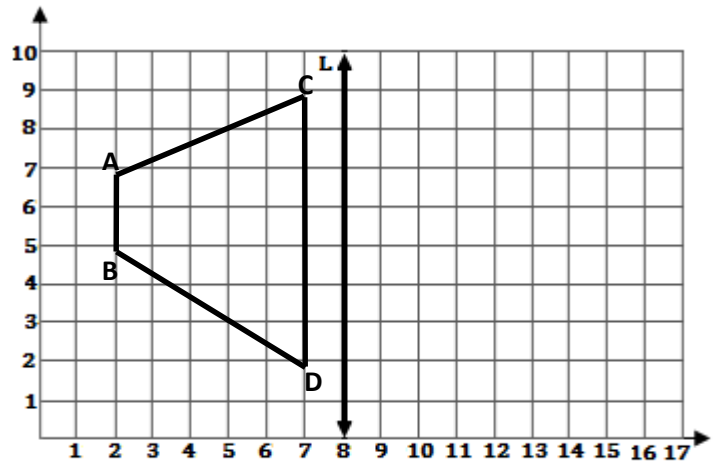
b) If L is the axis of reflection of the figure ABCD , Find the image of the figure by reflection in L then complete:

The image of A by reflection in L is A` (..... ,)

The image of B by reflection in L is B` (..... ,)

The image of C by reflection in L is C` (..... ,)

The image of D by reflection in L is D` (..... ,)



Unit 5:**Statistics**

1) Complete the following frequency table:

Numbers	Tally	Frequency
1
2
3
4
5
Total	20	

4 5 4 5 3 3 2 4 1 3
4 3 1 3 2 4 3 5 2 2

2) The following table shows the marks of 29 pupils in mathematics:

Marks	5 -	10 -	15 -	20 -	25 -	Total
Number of pupils	///	//// //	//// ///	//// /	////	29

- Rewrite the previous table showing frequency in numbers.
- How many pupils get less than 15 marks?
- Draw the frequency histogram and frequency polygon of this distribution.

3) The following table shows the daily wages of 50 workers in a company:

Wages	20 -	30 -	40 -	50 -	Total
Number of workers	10	8	20	12	50

Draw the frequency histogram and frequency polygon of this distribution

4) The following table shows how a family spends its monthly income:

Food	Transports	Electricity	Rent	treatment
800	600	300	400	300

Represent these data by pie chart

5) Represent these data by pie chart

Grade	1 st	2 nd	3 rd	4 th
Students	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$

Test 1

1) Choose the correct answer:

- a) The additive neutral element is (0 , 1 , 10)
- b) The set of even numbers (E) \cap the set of prime numbers (P) = (\emptyset , E , {2} , N)
- c) A square of side length y then its perimeter is (4y , y+4 , 3y)
- d) The triangle whose base length is 8 cm and the corresponding height of it is 5 cm then its area is..... (30 cm² , 20 cm² , 25 cm²)
-

2) Complete:

- a) The perimeter of a rectangle is 12 cm if its length is x cm, then its width is
- b) The area of the rhombus = $\frac{1}{2} \times \dots \times \dots$
- c) Mary is x years now, then her age after 5 years will be
- d) 1 , 4 , 8 , 13 , , in the same pattern
- e) The difference between two numbers is 4 if the smaller number is x then the greater number is
-

3) Write the following sets using the listing method then represent them on the number line:

- a) $X = \{ x : x \in \mathbb{N} , 1 < x \leq 6 \}$
- b) Y = The set of even number greater than 3

- 4) a) Use the properties of addition to find: $26 + 167 + 24 + 333$
- b) Use the distributive property to find: $(98 + 22) \times 5$
- c) If the greatest number of three consecutive natural numbers is $x+10$
- Find the other two numbers.
- d) Solve the following equation: $y + 5 = 26$

5) a) In Cartesian co-ordinate plane determine the following points $A(1,6)$, $B(1,2)$, $C(5,2)$, $D(5,6)$, If \overleftrightarrow{CD} is the axis of reflection of the figure ABCD, then determine the image of the figure ABCD.

b) The following table shows the marks of 50 pupils in mathematics:

Marks	0 -	10 -	20 -	30 -	40 -	Total
Number of pupils	2	5	10	18	15	50

- a) Draw the frequency histogram and frequency polygon of this distribution.
- b) How many pupils get less than 30 marks?
- c) How many pupils get 30 marks or more?

Test 2

1) Choose the correct answer:

- a) The multiplicative neutral element is (0 , 1 , 10)
- b) The set of even numbers (E) – the set of odd numbers (O) =(\emptyset , E , O , N)
- c) $\frac{20 \div 2}{5 - 5} = \dots\dots\dots$ (10 , 0 , meaningless)
- d) The sum of two numbers is 7 if one of them is y then the other number is
(7 + y , 7 - y , y - 7)
- e) If x is an odd number then x+1 is number (odd , even , prime)
-

2) Complete:

- a) The number of axes of symmetry of the square equals
- b) If a side length of a rhombus is L and its perimeter is P then the mathematical relation between P and L is $P = \dots\dots\dots$
- c) 1, 4, 9, 16,, in the same pattern
- d) If $265 = x + (6 \times 10) + (2 \times 100)$ then $x = \dots\dots$
- e) The circle whose diameter length is 7 cm, its circumference = cm ($\pi = \frac{22}{7}$)

3) a) Use the properties of multiplication to find: $125 \times 27 \times 8$

b) Use the distributive property to find: 14×1001

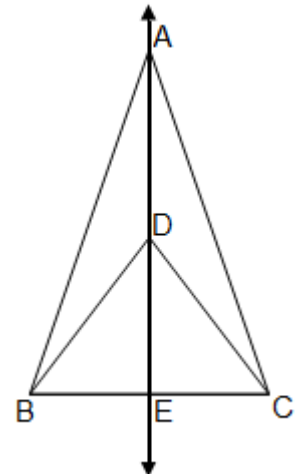
c) Solve the following equations: $2x - 3 = 15$

- 4) a) Which is greater in area a parallelogram of base length 6cm and height 9 cm or a rhombus in which the length of its diagonals are 8 cm and 10 cm
- b) Write the following set using the listing method then represent it on the number line:
 $Z = \{ x : x \in \mathbb{N}, 3 < x \leq 7 \}$
- c) If the base length of an isosceles triangle ABC is 3 cm, $AB=AC=L$ cm
 Then the perimeter is $P=.....$

5) a) In the opposite figure, \overleftrightarrow{AE} is the axis of reflection

Complete:

- 1) The image of $\triangle ABE$ by reflection across \overleftrightarrow{AE} is then $AB = \dots$ and $BE = \dots$
- 2) The image of $\triangle ABD$ by reflection across \overleftrightarrow{AE} is then $BD = \dots$
- 3) $\triangle DEC$ is congruent to $\triangle \dots$



b) The following table shows the working hours of 50 workers in a company:

Number of hours	4 -	6 -	8 -	10 -	Total
Number of workers	12	10	18	10	50

Draw the frequency histogram and frequency polygon of this distribution