CHAPTER – 11

Algebra

EXERCISE – 11.2

Q. 1

The side of an equilateral triangle is shown by *l*. Express the perimeter of the equilateral triangle using *l*.

Answer:

It is given in the question that,
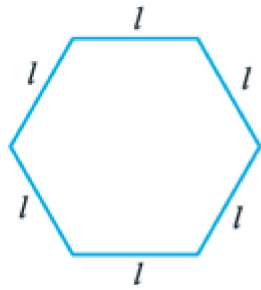
Side of equilateral triangle = 1

We know that,

The perimeter of equilateral triangle = Sum of all sides of the triangle

Therefore,

Perimeter of the equilateral triangle $= 1 + 1 + 1$

$= 3l$

Q. 2

The side of a regular hexagon is denoted by *l*. Express the perimeter of the hexagon using *l*.

Fig 11.10

Answer:

It is given in the question that,

Side of regular hexagon = l

We know that,

Perimeter of regular hexagon = 6 × side

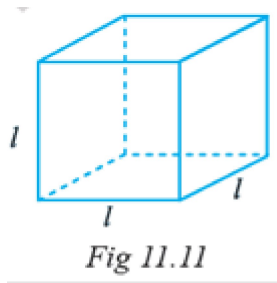Therefore,

Perimeter of regular hexagon = 6 × l

= 6l

Q. 3

A cube is a three-dimensional figure as shown in the adjoining figure. It has six faces and all of them are identical squares. The length of an edge of the cube is given by l. Find the formula for the total length of the edges of a cube.

Fig 11.11

Answer:

It is given in the question that,

Length of edge of cube = 1
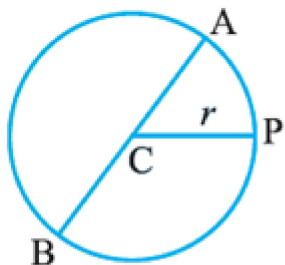
Also,

Number of edges in the cube = 12

Therefore,

Total number of edges = Number of edges × Length of the edge

= 12 × 1

= 12l

Q. 4

The diameter of a circle is a line segments which joins two points on the circle and also passes through the centre of the circle. (In the adjoining figure AB is a diameter of the circle; C is its centre.) Express the diameter of the circle (d) in terms of its radius (r).

Fig 11.12

Answer:

Here,

In the given question,

We know that,

CP is the radius r of the circle

And,

AB is the diameter of the circle,

And,

C is the centre of the circle

We can also see that,

AB = 2CP

Hence,

We can say that,

The diameter of the circle is two times the radius of the circle.

Q. 5

To find sum of three numbers 14, 27 and 13, we can have two ways:

(a) We may first add 14 and 27 to get 41 and then add 13 to it to get the total sum 54 or

(b) We may add 27 and 13 to get 40 and then add 14 to get the sum 54.

Thus, $(14 + 27) + 13 = 14 + (27 + 13)$.

This can be done for any three numbers. This property is known as the associativity of addition of numbers. Express this property which we have already studied in the chapter on Whole Numbers, in a general way, by using variables a, b and c.

Answer:

Here,

Let us take any three numbers as a, b and c.

Now,

According to the question,

We have to express the associative property here

And,

We know that,

Associative property says that,

Among three numbers any two numbers added together and then the resultant added to the third one will give the same result.

We are given $(14 + 27) + 13 = 14 + (27 + 13)$
If we replace 14 with a , 27 with b and 13 with c we get,

$(a + b) + c = a + (b + c)$