

Q-1 Choose the proper option from the given options so that the statement becomes true. [40]

- 1)The degree of Polynomial $a^3b+6ab^2+5a^2b^3$ is
 (a)3 (b)2 (c)**5** (d)1
- 2)What must be added to $1-2x$ to get $-2+5x$?
 (a) $3-7x$ (b) $-1+3x$ (c) **$7x-3$** (d) $3x+1$
- 3) $7x^2y$ is a _____
 (a)**cubic polynomial** (b)quadratic polynomial (c)linear polynomial (d)none
- 4)If $p= (-10)$ then the value of $p^2-2p-100$ is
 (a)**20** (b)-220 (c)180 (d)-20
- 5)Thrice of a number when decreased by 7 gives 8.The number is
 (a)4 (b)-4 (c)3 (d)**5**
- 6)A number when multiplied by 3 exceeds itself by 48.The number is _____
 (a)**24** (b)36 (c)32 (d)42
- 7)Two more than 3 times the number is 17.The number is _____
 (a)4 (b)6 (c)3 (d)**5**
- 8)If $4p-10= -2$ then the value of p is _____
 (a)3 (b)-2 (c)**2** (d)1
- 9)If $3:17=x:102$ then the value of x = _____
 (a)16 (b)12 (c)14 (d)**18**
- 10)10 men can dig a trench in 9 days.The number of days required to dig the same trench by 15 men will be
 (a)4 (b)**6** (c)8 (d)7
- 11)If $2A=3B=4C$ then A:B:C is equal to _____
 (a)3:2:4 (b)**6:4:3** (c)2:3:4 (d)3:4:6
- 12)If $7:x::35:45$ then $x=?$
 (a)11 (b)15 (c)**9** (d)5
- 13)In the adjacent figure ΔABC is right angled triangled at B, $AB=24$ cm and $BC=7$ cm .The value of x is _____
 (a)28 cm (b)27 cm (c)26 cm (d)**25**
 cm
- 14)Find the Area of a triangle whose base is 35 cm and height is 16 cm
 (a) **280cm^2** (b) 356cm^2 (c) 128cm^2
 (d) 516cm^2
- 15)In a right angled triangled ,right angled at B, if $AB=5$ cm and $AC=13$ cm then $BC =$ _____
 (a)8 cm (b)**12 cm** (c)10 cm (d)5
 cm
- 16)Which of the following is not a Pythagorean triplet?
 (a)5,12,13 (b)**10,15,25** (c)15,36,39 (d)10,24,26
- 17)Which one can not be the lengths of the sides of a triangle?
 (a)3cm,4cm,5cm (b) **5cm,6cm,11cm** (c) 7cm,8cm,14cm (d)
 3cm,3cm,3cm
- 18)The sides having a triangle are produced in order .Then the sum of the exterior angles $\angle 1+\angle 2+\angle 3$ is
 (a) 180° (b) **360°** (c) 540°
 (d)none
- 19)The sides of a triangle are 3 cm,4cm,5cm then its area is
 (a) 8cm^2 (b) 12cm^2 (c) 10cm^2 (d) **6cm^2**
- 20)The diameter of a circle is 28 cm .The circumference of a circle is

- (a)88cm (b)44cm (c)14cm (d)none
 21)The circumference of a circular disc is 88 cm its radius is _____
 (a)7cm (b)28cm (c)14cm (d)21cm
 22)Among the two congruent angles one has a measure of 55° the measure of other angle is _____
 (a)55° (b)65° (c)45° (d)35°
 23)The following number of goals were scored by a team in a series of 10 matches.2,3,4,5,1,2,3,3,4,3 then the median score is
 (a)3.5 (b)3 (c)2.8 (d)3.8
 24)The range of the data.17,65,78,90,12,18,15,10,40 is
 (a)80 (b)78 (c)90 (d)75
 25)A common dice has _____
 (a)one face (b)four faces (c)six faces (d)eight faces
 26)The sum of probabilities of all possible outcomes is always equal to _____
 (a)0 (b)100 (c)2 (d)1
 27)The following number of goals were scored by a team B in series of 10 matches .3,4,5,6,2,3,4,4,5,4 then the mean score is
 (a)3 (b)4 (c)3.5 (d)4.2
 28)Cuboid has number of faces.
 (a)6 (b)7 (c)3 (d)none
 29)The length of diagonals of a rhombus are 14 cm 10 cm respectively.If area is _____
 (a)70 cm² (b)60cm² (c)80cm²
 (d)75cm²
 30)In right triangles ABC and DEF ,if hypotenuse AB=EF & side AC=DE then $\Delta ABC \cong$ _____
 (a) ΔEDF (b) ΔDEF (c) ΔFED (d) ΔEFD
31)The bisector of the vertical angle of an isosceles triangle bisects base at
 (a)60° (b)90° (c)30° (d)45°
 32) $\Delta DEF \cong \Delta BCA$ corresponding to EF of ΔDEF , corresponding part of ΔBCA is
 (a)AC (b)AB (c)CA (d)BC
 33)Find the median of the values 14,18,15,20,35,25,30
 (a)20 (b)35 (c)25 (d)18
 34)Formula to find Area of circle is
 (a) πr^2 (b) πr (c) $2\pi r$ (d) πr^3
 35)Find the area of circle whose radius is 5.6 cm
 (a)98.56cm² (b) 985.6cm² (c) 9.856cm² (d) 98.56cm³
 36)Express each of the following ratio in the simplest form 360:450
 (a)4:5 (b)5:4 (c)6:5 (d)3:4
 37)Solve $4x+20=12$,x= _____
 (a)(-2) (b)4 (c)2 (d)12
 38)Add $7x+9x =$ _____
 (a)16x (b)7x (c)9x (d)none
 39) $2x^2+5x+7$ is _____
 (a)Trinomial (b)Binomial (c)Monomial (d)Cubic polynomial
 40)The sum of the angles of a triangle is
 (a)180° (b)360° (c)90° (d)540°

PART—B

Q-1 Solve the following (Any 08)

[16]

- 1)Find the sum : $4a^3b-7a^2b^2+8ab, -6a^3b+6a^2b^2-ab$

$$4a^3b - 7a^2b^2 + 8ab, -6a^3b + 6a^2b^2 - ab$$

$$(4a^3b - 7a^2b^2 + 8ab) + (-6a^3b + 6a^2b^2 - ab)$$

$$= (4a^3b - 6a^3b) + (-7a^2b^2 + 6a^2b^2) + (8ab - ab)$$

(Collecting like terms together)

$$= -2a^3b - a^2b^2 + 7ab$$

2) Solve the equation $4x+5=17-2x$ and check the result.

∴ We have, $4x + 5 = 17 - 2x$

$$\Rightarrow 4x + 5 + 2x = 17 - 2x + 2x$$

$$\Rightarrow 6x + 5 = 17$$

$$\Rightarrow 6x + 5 - 5 = 17 - 5$$

$$\Rightarrow 6x = 12$$

$$\Rightarrow \frac{6x}{6} = \frac{12}{6}$$

$$\Rightarrow x = 2$$

To check : For $x = 2$,

$$\text{L.H.S.} = 4 \times 2 + 5 = 13$$

and $\text{R.H.S.} = 17 - 2 \times 2 = 13$

$$\therefore \text{L.H.S.} = \text{R.H.S.}$$

∴ Hence, $x = 2$ is the solution of the given equation.

3) Find the mean proportional between 6 and 24.

Let the mean proportional between 6 and 24 be x . Then,

$$6 : x :: x : 24$$

Product of extremes = Product of means

$$\Rightarrow 6 \times 24 = x \times x \Rightarrow x^2 = 144$$

$$\Rightarrow x^2 = (12)^2 \quad (\because 144 = 12 \times 12)$$

$$\Rightarrow x = 12$$

Hence, the mean proportional to 6 and 24

is 12.

4) Each of the two equal angles of a triangle is twice the third angle. Find the angles of the triangle.

Let the third angle be x .

Then, other two equal angles are $2x$ each.

$$\therefore 2x + 2x + x = 180^\circ$$

(∵ Sum of the angles of a triangle is 180°)

$$\Rightarrow 5x = 180^\circ$$

$$\Rightarrow x = \frac{180^\circ}{5} = 36^\circ$$

Hence, the angles of the triangle are 72° , 72° and 36° .

5) The area of four walls of a hall is 266 cm^2 . The length and breadth of the wall are 12 m & 7 m respectively. Find the height of the wall.

1. Let the width of a rectangular field be x .

$$\therefore \text{Length} = 4x$$

$$\begin{aligned} \text{Area of rectangular field} &= \text{length} \times \text{breadth} \\ &= 4x \times x = 4x^2 \text{ sq. m} \end{aligned}$$

$$\therefore 4x^2 = 20736 \text{ sq. m}$$

$$\Rightarrow x^2 = 5184 \text{ sq. m}$$

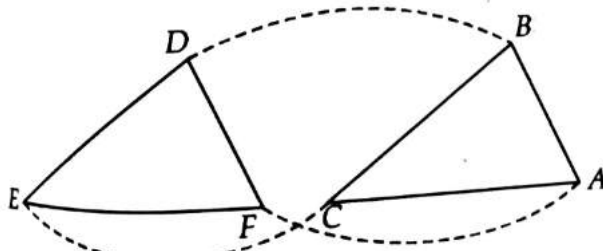
$$\Rightarrow x^2 = (72 \text{ m})^2 \Rightarrow x = 72 \text{ m}$$

Thus, length = $(4 \times 72) \text{ m} = 288 \text{ m}$ and
breadth = 72 m .

6) $\triangle DEF \cong \triangle BCA$ write the parts of $\triangle BCA$ that correspond to (1) $\angle F$ (2) DE (3) $\angle D$ (4) EF (5) DF

3. $\triangle DEF \cong \triangle BCA$, under the correspondence $DEF \leftrightarrow BCA$.

Therefore, the corresponding parts of $\triangle BCA$ are :



$$(i) \angle F \leftrightarrow \angle A$$

$$(iii) \angle D \leftrightarrow \angle B$$

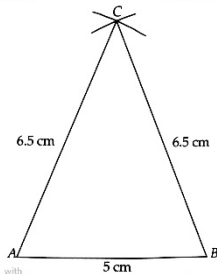
$$(v) DF \leftrightarrow BA$$

$$(ii) DE \leftrightarrow BC$$

$$(iv) EF \leftrightarrow CA$$

7) Draw an isosceles $\triangle ABC$ in which $AB = 5 \text{ cm}$, $AC = BC = 6.5 \text{ cm}$.

1. Given that $AB = 5 \text{ cm}$, $BC = 6.5 \text{ cm}$, $AC = 6.5 \text{ cm}$.



$\triangle ABC$ is the required isosceles triangle.

8) Given below are the ages of 25 students of class VII in a school. Prepare a frequency distribution table.

12, 13, 13, 14, 14, 13, 14, 14, 13, 13, 12, 12, 13, 13, 10, 11, 12, 13, 11, 12, 11, 11, 12, 11, 12

Arranging the data in ascending order :

10, 11, 11, 11, 11, 11, 12, 12, 12, 12, 12, 12,
12, 13, 13, 13, 13, 13, 13, 13, 13, 14, 14, 14,
14.

Ages	Tally Marks	Frequency
10		1
11		5
12		7
13		8
14		4

9) Give examples of each one of : (i) a sphere (ii) a cone

1. (i) **Sphere:** Football, globe, orange.

(ii) **Cone:** Ice-cream cone, clown's cap, conical tent.

Q-2 Solve the following (Any 04)

[12]

1) One side of a triangle is produced and the exterior angle so formed is 120° . If the exterior opposite angles are in the ratio 2:3 find the measure of each of the triangles of the triangle.

Let interior opposite angles of a ΔABC be $2x$ and $3x$. Therefore,

Exterior angle = Sum of interior opposite angles of triangle

$$\Rightarrow 120^\circ = 2x + 3x \Rightarrow 5x = 120^\circ$$

$$\Rightarrow x = \frac{120^\circ}{5} = 24^\circ$$

Thus, the interior opposite angles are

$$2 \times 24^\circ = 48^\circ \text{ and } 3 \times 24^\circ = 72^\circ.$$

Now, in ΔABC ,

$$\angle A + \angle B + \angle C = 180^\circ$$

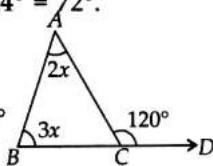
(Angle sum property)

$$\therefore 48^\circ + 72^\circ + \angle C = 180^\circ$$

$$\Rightarrow \angle C = 180^\circ - 120^\circ$$

$$\Rightarrow \angle C = 60^\circ$$

Hence, the measures of angles of the triangle are 48° , 72° and 60° .



2) If $P=x^2+6$, $Q=3x^2-x+2$, $R=x^2-4x$ then find $P+Q-R$

$$P = x^2 + 6, Q = 3x^2 - x + 2, R = x^2 - 4x$$

Now, $P + Q - R$

$$\begin{aligned} &= (x^2 + 6) + (3x^2 - x + 2) - (x^2 - 4x) \\ &= x^2 + 6 + 3x^2 - x + 2 - x^2 + 4x \\ &= (x^2 + 3x^2 - x^2) + (-x + 4x) + 6 + 2 \\ &= 3x^2 + 3x + 8 \end{aligned}$$

$$\text{Hence, } P + Q - R = 3x^2 + 3x + 8$$

3) The sum of three consecutive even numbers is 276. Find numbers.

Let the three consecutive even numbers be $2x$, $2x + 2$ and $2x + 4$.

According to give x condition,

$$2x + 2x + 2 + 2x + 4 = 276$$

$$\Rightarrow 6x + 6 = 276 \Rightarrow 6x = 276 - 6$$

(Transposing + 6 to R.H.S)

$$\Rightarrow 6x = 270$$

$$\Rightarrow \frac{6x}{6} = \frac{270}{6} \text{ (Dividing both sides by 6)}$$

$$\Rightarrow x = 45$$

$$2x = 2 \times 45 = 90,$$

$$2x + 2 = 90 + 2 = 92,$$

$$2x + 4 = 90 + 4 = 94$$

Hence, the three consecutive even numbers are 90, 92 and 94.

4) If 24.8 m of a uniform iron rod weighs 82.15 kg. What will be the length of 26.5 kg of the same rod?

Length of iron rod weighing 82.15 kg

$$= 24.8 \text{ m}$$

Length of iron rod weighing 1 kg = $\frac{24.8}{82.15}$ m

Length of iron rod weighing 26.5 kg

$$= \frac{24.8 \times 26.5}{82.15} \text{ m} = 8 \text{ m}$$

Hence, length of iron rod weighing 26.5 kg

$$= 8 \text{ m}$$

5) Construct a triangle ABC in which AC= 6 cm , $\angle A=60^\circ$, $\angle B=90^\circ$. [Hint : Use angle sum property]

Given that : AC = 6 cm, $\angle A = 60^\circ$ and $\angle B = 90^\circ$.

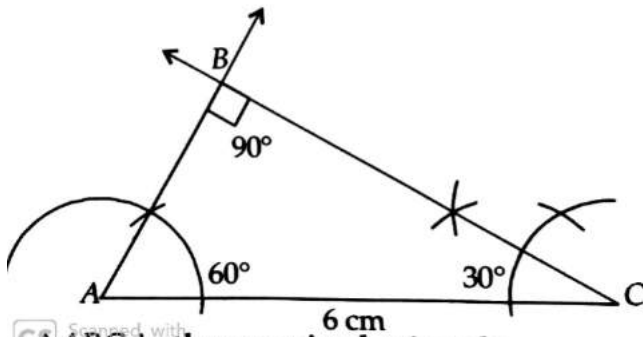
In ΔABC ,

$\angle A + \angle B + \angle C = 180^\circ$ (Angle sum property)

$$\Rightarrow 60^\circ + 90^\circ + \angle C = 180^\circ$$

$$\Rightarrow \angle C = 180^\circ - (60^\circ + 90^\circ)$$

$$\Rightarrow \angle C = 180^\circ - 150^\circ \Rightarrow \angle C = 30^\circ$$



ΔABC is the required triangle.

Q-3 Solve the following (Any 03)

[12]

1) Find the median of first ten prime numbers.

The first 10 prime numbers are

2, 3, 5, 7, 11, 13, 17, 19, 23, 29.

Number of terms, $n = 10$ (even)

$$\text{Median} = \frac{1}{2} \left[\left(\frac{n}{2} \right)^{\text{th}} \text{ term} + \left(\frac{n}{2} + 1 \right)^{\text{th}} \text{ term} \right]$$

$$= \frac{1}{2} \left[\left(\frac{10}{2} \right)^{\text{th}} \text{ term} + \left(\frac{10}{2} + 1 \right)^{\text{th}} \text{ term} \right]$$

$$= \frac{1}{2} [5^{\text{th}} \text{ term} + 6^{\text{th}} \text{ term}]$$

$$= \frac{1}{2} \times (11 + 13) = \frac{1}{2} \times 24 = 12$$

Hence, the median is 12.

2) A 10 m long ladder reaches a window 8 m high from the ground on placing it against a wall at a distance x . Find the distance " x ".

Let W be the window at the height of 8 m from point G at ground, and L be the foot of the ladder.

Then, $WG = 8$ m,

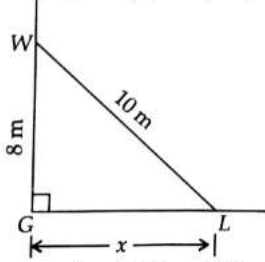
$WL = 10$ m, $GL = x$ (given)

In right angled ΔWGL ,

$$(WL)^2 = (WG)^2 + (GL)^2$$

(By Pythagoras theorem)

$$(10)^2 = (8)^2 + (GL)^2$$



$$\Rightarrow x^2 = (10)^2 - (8)^2$$

$$\Rightarrow x^2 = 100 - 64$$

$$\Rightarrow x^2 = 36 \Rightarrow x = 6$$

Hence, the distance x is 6 m.

3) Divide Rs.4500 among A,B,C in the ratio 3:5:7

Sum of the terms of ratio = $3 + 5 + 7 = 15$

Total money = ₹4500

$$\begin{aligned} \text{A's share} &= \frac{3}{15} \times ₹4500 = ₹\left(\frac{3}{15} \times 4500\right) \\ &= ₹(3 \times 300) = ₹900 \end{aligned}$$

$$\begin{aligned} \text{B's share} &= ₹\left(\frac{5}{15} \times 4500\right) \\ &= ₹(5 \times 300) = ₹1500 \end{aligned}$$

$$\begin{aligned} \text{C's share} &= ₹\left(\frac{7}{15} \times 4500\right) \\ &= ₹(7 \times 300) = ₹2100 \end{aligned}$$

4) Solve each of the following equations.

(1) $2x - 3 = 6$

$$1. \quad 2x - 3 = 6$$

$$\Rightarrow 2x = 6 + 3 \text{ (Transposing } -3 \text{ to R.H.S)}$$

$$\Rightarrow 2x = 9$$

$$\Rightarrow \frac{2x}{2} = \frac{9}{2} \text{ (Dividing both sides by 2)}$$

$$\boxed{x = \frac{9}{2}}$$

$$(2) 15 + \frac{p}{2} = 3p$$

$$15 + \frac{1}{2}p = 3p \quad \text{or} \quad 3p = 15 + \frac{p}{2}$$

$$\Rightarrow 3p - \frac{p}{2} = 15 \quad (\text{Transposing } +\frac{p}{2} \text{ to L.H.S})$$

$$\Rightarrow \frac{5p}{2} = 15$$

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$$\Rightarrow \frac{5p}{2} \times 2 = 15 \times 2$$

(Multiplying both sides by 2)

$$\Rightarrow 5p = 30$$

$$\Rightarrow \frac{5p}{5} = \frac{30}{5} \quad (\text{Dividing both sides by 5})$$

CS Scanned with CamScanner $p = 6$

$$(3) 6 + 5(a-1) = 36$$

$$6 + 5(a-1) = 36 \Rightarrow 5(a-1) = 36 - 6$$

(Transposing 6 to R.H.S)

$$\Rightarrow 5(a-1) = 30$$

$$\Rightarrow \frac{5(a-1)}{5} = \frac{30}{5}$$

(Dividing both sides by 5)

$$\Rightarrow a - 1 = 6$$

$$\Rightarrow a = 6 + 1$$

(Transposing - 1 to R.H.S)

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$$a = 7$$

Best Of Luck