CODE:PR062- AG-TS-X-6 **REG.NO:-TMC -D/79/89/36/63**

General Instructions :-

(i) **All** Question are compulsory :

(ii) This question paper contains **40** questions.

(iii) Question **1-20**in **PART-A** are Objective type question carrying **1** mark each.

(iv) Question **21-26**in **PART-B** are sort-answer type question carrying **2** mark each.

(v) Question **27-34**in **PART-C** are long-answer-**I** type question carrying **3** mark each.

(vi) Question **35-40** in **PART-D** are long-answer-**II** type question carrying **4** mark each

(vii) You have to attempt only one lf the alternatives in all such questions.

(viii) Use of calculator is not permitted.

(ix) Please check that this question paper contains 10 printed pages.

(x) Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.

Time : 3 Hours **Maximum Marks : 80**

CLASS – X **MATHEMATICS**

PRE-BOARD EXAMINATION 2020-21

PART – A **(Question 1 to 20 carry 1 mark each.)**

SECTION I : Single correct answer type

This section contain 10 multiple choice question . Each question has four choices (A) , (B) , (C) &(D) out of which **ONLY ONE** is correct .

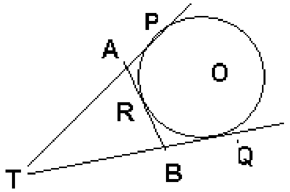
Q.1	HCF of two consecutive even numbers is: (A) 0 (B) 1 (C) 4 (D) 2 ANS D
Q.2	If the HCF of 210 and 55 is expressible in the form $210\times5+55y$ then y = a. –19 b. –29 c. 19 d. 29 ANS : (a) –19
Q.3	If HCF of 65 and 117 is expressible in the form of 65m-117, then the value of m is: (A) 4 (B) 2 (C) 1 (D) 3 ANS B
Q.4	If $47x+31y=63$;$31x+47y=15$ then (a) $x=2, y=1$ (b) $x=2, y=-1$ (c) $x=1, y=2$ (d) $x=-1, y=2$ Ans.(b)

Q.5 In the given Fig. $\angle BAC = 90^\circ$ and AD $\perp$ BC. Then,

(a) BD. CD $= BC^2$ (b) AB. AC $= BC^2$

(c) BD. CD = AD^2 (d) AB. AC = AD^2. . Ans.c

Q.6



In the given are three tangents TP, TQ and AB are respectively drawn at the point P, Q and R to a circle. The semi - perimeter of ΔTAB is equal to

(A) 3 TA (B) TP (C) 4 AB (D) 2 TQ ANS : B

OR

PT is a tangent to a circle whose center is O. IF PT = a units and radius is r units then, how far are P from O?

$\sqrt{a^2 + r^2}$ (B) $\sqrt{a^2 - r^2}$ (C) $\sqrt{r^2 - a^2}$ (D) $\sqrt{2x}$ ANS : A

Q.7 The coordinates of the middle points of the sides of a triangle are (4, 2), (3, 3) and (2,2), then the coordinates of its centroid are

(a) (3, 7/3) (b) (3, 3) (c) (4,3) (d) none of these (Ans. a)

Q.8 The value of x for which AB = BC, where A(6, -1), B(1, 3) and C(x, 8), is

(A) (A)3 (B) -3 (C) 5 (D) -5 ANS.(B), (C)

Q.9 If $\cot\theta = \frac{7}{8}$ then the value of $\frac{(1+\cos\theta)}{(1-\sin\theta)}\frac{(1-\cos\theta)}{(1+\sin\theta)}$ is :

(a) $\frac{49}{64}$ (b) $\frac{8}{7}$ (c) $\frac{64}{49}$ (d) $\frac{7}{8}$ Ans.c

Q.10 If the points (k, 2k), (3k, 3k) and (3, 1) are collinear, then k

(A) $-\frac{1}{3}$ (B) $\frac{1}{3}$ (C) $-\frac{2}{3}$ (D) $\frac{2}{3}$ ANS. (A)

(Q11 – Q15) Answer the following questions

Q.11 If h, s, V be the height, curved surface area and the volume of a cone respectively, then $(3\pi Vh^3 - s^2h^2 + 9V^2)$ is equal to -------------- 0

Q.12 Discriminant of the quadratic equation $2x^2 + x - 8 = 0$ is -----------

OR

On dividing $3x^3 - 2x^2 + 5x - 5$ by a polynomial p(x), the quotient and remainder are $x^2 - x + 2$ and -7 respectively. Then p(x)=---------. ans : $p(x) = \frac{3x^3 - 2x^2 + 5x + 2}{x^2 - x + 2} = 3x + 1$

Q.13 Determine the ration in which the line 2x + y – 4 = 0 divides the line segment the joining A(2, -2) and B(3, 7) ------------ 2 : 9

Q.14 Let S_n denote the sum of n terms of an AP whose first term is a.

if the common difference d is given by $d = S_n - KS_{n-1} + S_{n-2}$, then k = -------------- 2

Q.15 The probability that a leap year should have exactly 52 Tuesday is ------- $\frac{5}{7}$

Fill in the blanks (Q16 – Q20)

Q.16 Check whether 4^n can end with digit zero for any natural number n.ANS

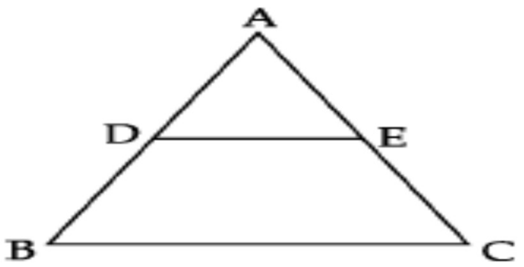
If a number 4^n, for any natural number n ends with digit 0, then it is divisible by 5.

The prime factorization of 4^n must contain the prime factor 5.

This is not possible because prime factors of 4^n is 2 only and the uniqueness of Fundamental theorem of arithmetic guarantees that there are no other prime in factorisation of 4^n.

Hence 4^n can never end with the digit zero for n ∈ N.

Q.17 In $\Delta ABC, D$ and E are the point on the side AB and AC respectively such that $DE \parallel BC$. If $AD = 6x - 7$, $DB = 4x - 3$, $AE = 3x - 3$ and $EC = 2x - 1$, then find the value of x.SOL:



$AD = 6x - 7$, $DB = 4x - 3$

$AE = 3x - 3$, $EC = 2x - 1$

$\because$ DE||BC

By B.P.T

$$\frac{AD}{DB} = \frac{AE}{EC}$$

$$\frac{6x-7}{4x-3} = \frac{3x-3}{2x-1}$$

After solving $x = 2$

Q.18 The sine of an angle is to it's cosine as 8:15. find their actual value . Ans-: $\sin\theta = \frac{8}{17}; \cos\theta = \frac{15}{17}$

Q.19 Is 184 a term of the sequence 3, 7, 11 …… ? ANS:

3, 7, 11 ……… $a = 3, d = 7 - 3 = 11 - 7 = 4$

$T_n = a + (n-1)d$. Let $T_n = 184$

$184 = 3 + (n-1)4$

$\frac{181}{4} = n - 1$

$45.25 = n - 1$

$46.25 \equiv n$

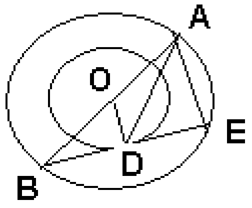
$\Rightarrow$184 is not a term of given A.P.

Q.20 If the equation $kx^2 - 5x + k = 0$ has real roots, find the value of k.ANS: ANS: $D \ge O \quad OR \quad 25-4k^2 \ge 0 \Rightarrow \frac{5}{2} \le k \le -\frac{5}{2}$

PART – B **(Question 21 to 26 carry 2 mark each.)**

Q.21 Jasleen goes to big bazaar every 64 days and harpreet goes to the same every 72 days. They meet each other one day. How many days later will they meet each other again?Answer-: 576 days

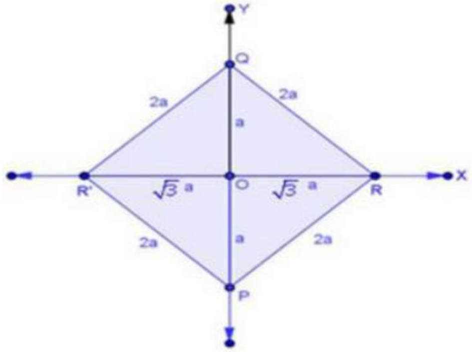
Q.22 The radi of two concentric circles are 13 cm and 8 cm . AB is a diameter of the bigger circle . BD is tangent to the smaller circle touching it at D . Find the length of AD . ANS



AE = 16 ; $BD = DE = \sqrt{105}$;

$AD^2 = AE^2 + DE^2 \Rightarrow AD = \sqrt{361} = 19$

Q.23 The base PQ of two equilateral triangles PQR and PQR’ with side 2a lies along y-axis such that the mid-point of PQ is at the origin. Find the coordinates of the vertices R and R’ of the triangles.



Sol:

We have two equilateral triangle and with side PQR PQR$^{/}$ 2a O is the mid-point of PQ.

In ΔQOR, $\angle QOR = 90°$

Hence, by Pythagoras theorem

$$OR^2 + OQ^2 = QR^2$$

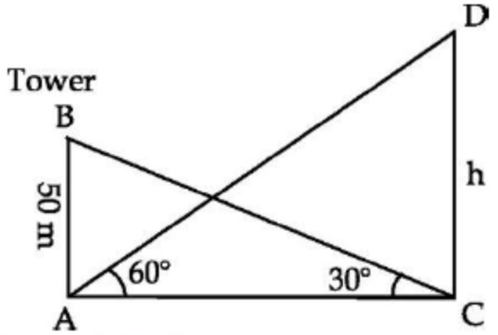
$$OR^2 = (2a)^2 - (a)^2$$

$$OR^2 = 3a^2$$

$$OR = \sqrt{(3)}a$$

Coordinates of vertex R is $(\sqrt{3}a, 0)$ and coordinate of vertex R’ is $(-\sqrt{3}a, 0)$

Q.24 The angle of elevation of the top of a hill at the foot of a tower is 60 and the angle of elevation of the top of the tower from the foot of the hill is 30. If the tower is 50 m high, find the height of the hill. ANS:



In rt ΔBAC

$$\left.\begin{aligned}\cot 30^\circ &= \frac{AC}{50}\\ AC &= 50\sqrt{3}\text{ m}\end{aligned}\right\}$$

In rt ΔACD

$$\tan 60^\circ = \frac{CD}{50\sqrt{3}} \Rightarrow CD = 150\text{ m}$$

Q.25 Cards marked with numbers 13, 14, 15 …... 60 are placed in a box and mixed thoroughly. Once card is drawn at random from the box. Find the probability that the sum of digits on the card drawn is 5.

ANS:

Sample space = {13, 14, 15, ……, 60}

Total no. of possible outcomes = 48

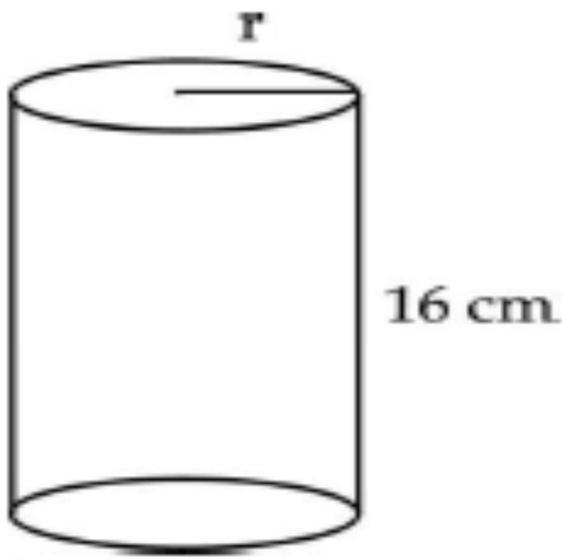
Favourable outcomes = 14, 23, 32, 41, 50

$$\therefore \text{P(sum of digits is 5)} = \frac{5}{48}$$

OR

A letter is chosen from the word **'EQUATION'**. What is the probability that it is a consonant ?ans : 3/8

Q.26 A rectangular sheet of paper of dimensions 44cm × 16cm is rolled along its length to form a cylinder of height 16cm. find the volume of the cylinder .



$2\pi r = 44$

$\therefore 2 \times \frac{22}{7} \times r = 44 \Rightarrow r = 7 \text{ cm}$

$\therefore$ Volume of cylinder

$= \frac{22}{\cancel{7}} \times \cancel{7} \times 7 \times 16 \text{ cm}^3$

$= 2464 \text{ cm}^3$

ANS:

PART – C **(Question 27 to 34 carry 3 mark each.)**

Q.27 Three sets of English, Hindi and mathematics books have to be stacked in such a way that all the books are stored topic-wise and the height of each stack is the same. The number of English books is 96, the number of Hindi books is 240 and the number of mathematics books is 336. Assuming that the books are of the same thickness, determine the number of stacks of English, Hindi and mathematics books.

ANSWER -: Thus, HCF of 96,240 and 336 is 48.Hence, there must be 48 books in each stack.Now, Number of stacks of English books= $\frac{number\ \ of\ \ english\ \ books}{number\ \ of\ \ books\ \ in\ \ each\ \ stack} = \frac{96}{48} = 2$

Number of stacks of Hindi books= $\frac{number\ \ of\ \ hindi\ \ books}{number\ \ of\ \ books\ \ in\ \ each\ \ stack} = \frac{240}{48} = 5$

And Number of stacks of mathematics books= $\frac{number\ \ of\ \ mathematics\ \ books}{number\ \ of\ \ books\ \ in\ \ each\ \ stack} = \frac{336}{48} = 7$

OR

An army contingent of 616 members is to march behind and army band of 32 members in a parade. The two groups are to march in the same number of columns. What is the maximum number of columns in which they can march? ANS

Let x be the maximum number of columns in which the two groups can march.

x is HCF of 616 and 32.

By Euclid's division algorithm

$616 = 32 \times 19 + 18$

$32 = 8 \times 4 + 0$

HCF $(616, 32) = 8$

Hence the maximum number of columns in which they can march is 8.

Ans: 8 columns

Q.28 The ratio of the sum of m and n of an A.P. is $m^2 : n^2$. Show that the ratio of the mth and nth terms is (2m-1): (2n-1) ANS: $\frac{S_m}{S_n}=\frac{m^2}{n^2}\Rightarrow\frac{m/2[2a+(m-1)d]}{n/2[2a+(n-1)d]}=\frac{m^2}{n^2}$ therefore d = 2a & $\frac{T_m}{T_n}=\frac{[a+(m-1)d]}{[a+(n-1)d]}=\frac{2m-1}{2n-1}$.

Q.29 The ages of two friends Ani and Biju differ by 3years. Ani's father Dhatam is twice as old as Ani and Biju is twice as old as his sister Cathy. The ages of Cathy and Dharam differ by 30 years. Find the ages of Ani and Bijy. ans : $X-Y=\pm 3;2X-\frac{Y}{2}=30\Rightarrow X=19\,\&\,Y=16\,OR\quad X=21\,\&\,Y=24$

OR

In a Δ ABC, ∠ A= $x^{0,}$ ∠ B=$(3x-2^0)$, $\angle C = y^\circ$ Also , $\angle C-\angle B=9^\circ$ Find the three angles.

$\angle A = x^\circ$ ....(i)

$\angle B = (3x-2)^\circ$ ...(ii)

$\angle C = y^\circ$ ...(iii)

And, $\angle C - \angle B = 9^\circ$ ....(iv)

$y - (3x - 2) = 9$

$\Rightarrow y - 3x + 2 = 9$

$\Rightarrow y - 3x = 9 - 2$

$\Rightarrow -3x + y = 7$ ...(v)

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

$\Rightarrow x + 3x - 2 + y = 180$

$\Rightarrow 4x + y = 180 + 2$

$\Rightarrow 4x + y = 182$ ...(vi)

$4x + 3x = 182 - 7$

$\Rightarrow 7x = 175$

$\Rightarrow x = \frac{175}{7} = 25$

$\therefore \angle A = x^\circ = 25^\circ$

$\angle B = (3x-2)^\circ = (3\times 25-2)^\circ = (75-2) = 73^\circ$

And, $\angle C = y^\circ = 82^\circ$

Q.30 Find the value of a and b such that $x^4+x^3+8x^2+ax+b$ is divisible by x^2+1 give the remainder 3x + 5 . $a=4\,\&\,b=12$

Q.31 If the point P(x,y) is equidistant from the points A(3,6) and B(-3,4) prove that 3x + y - 5 = 0.

Q.32 Prove that : $\frac{\tan A}{1-\cot A}+\frac{\cot A}{1-\tan A}=1+\sec A\ \text{cosec}\ A$.

ANS:

$$\text{LHS } \frac{\frac{\sin A}{\cos A}}{1-\frac{\cos A}{\sin A}}+\frac{\frac{\cos A}{\sin A}}{1-\frac{\sin A}{\cos A}}$$

$$\frac{\sin A\times\sin A}{\cos A\,(\sin A-\cos A)}+\frac{\cos A\times\cos A}{\sin A\,(\cos A-\sin A)}$$

$$\frac{\sin^2 A}{\cos A\,(\sin A-\cos A)}-\frac{\cos^2 A}{\sin A\,(\sin A-\cos A)}$$

$$\frac{\sin^3 A-\cos^3 A}{\sin A\ \cos A\,(\sin A-\cos A)}$$

$$\frac{\left(\cancel{\sin A-\cos A}\right)\left(\sin^2 A+\cos^2 A+\cos A\sin A\right)}{\sin A\ \cos A\left(\cancel{\sin A-\cos A}\right)}$$

$$\frac{1+\cos A\sin A}{\sin A\cos A}=\frac{1}{\sin A\cos A}+1$$

$$=\sec A\ \operatorname{cosec} A+1-\text{RHS}$$

OR

If tan A + sin A = m and tan A – sin A = n, prove that $(m^2 - n^2)^2 = 16mn$. **ANS:**

$\tan\theta+\sin\theta=m$

$\tan\theta-\sin\theta=n$

$(m+n)\ (m-n)=2\tan\theta\times 2\sin\theta$

$m^2-n^2=4\tan\theta\ \sin\theta$

$(m^2-n^2)^2=16\tan^2\theta\ \sin^2\theta$

$16mn=16(\tan\theta+\sin\theta)\ (\tan\theta-\tan\theta)$

$$=16(\tan^2\theta-\sin^2\theta)$$

$$=16\left(\frac{\sin^2\theta}{\cos^2\theta}-\sin^2\theta\right)$$

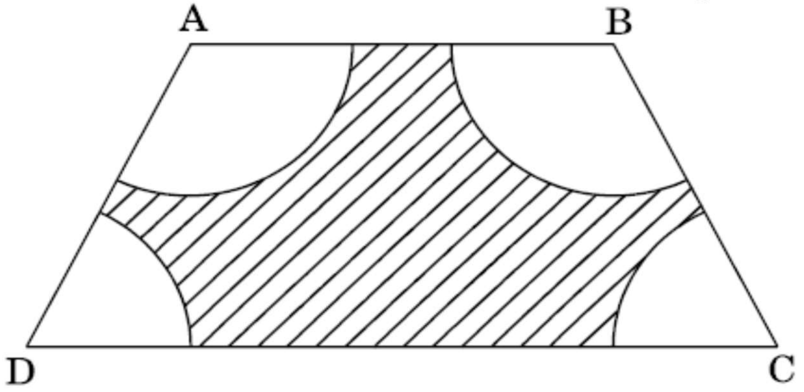
$$=16\ \frac{\sin^2\theta\ (1-\cos^2\theta)}{\cos^2\theta}$$

$$=16\tan^2\theta\ \sin^2\theta$$

LHS = RHS

$\therefore\ (m^2-n^2)^2=16mn$

Q.33 In Figure 3, ABCD is a trapezium with AB || DC, AB = 18 cm, DC = 32 cm and the distance between AB and DC is 14 cm. If arcs of equal radii 7 cm have been drawn, with centers A, B, C and D, then find the area of the shaded region.



ANS:

$$\text{Area of trapezium} = \frac{1}{2}(18+32)\times 14 = 350\ \text{cm}^2$$

$$\text{Area of four arcs} = \pi(7)^2 = 154\ \text{cm}^2$$

$$\text{Area of shaded region} = 350 - 154 = 196\ \text{cm}^2$$

Q.34 Find the mode of the following distribution of marks obtained by 50 students.

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	4	8	10	20	8

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of students	4	8	10	20	8
			f_0	f_1	f_2

Maximum frequency = 20 (f_1)

$$\text{Mode} = l + \left[\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\times h\right]$$

$$= 30 + \left[\frac{20-10}{40-10-8}\times 10\right]$$

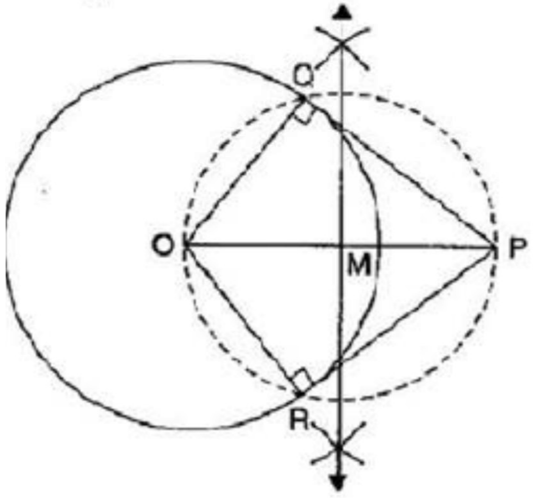
ANS

PART – D **(Question 35 to 40 carry 4 mark each.)**

Q.35 Draw a circle of radius 6 cm from a point 10 cm away from the center , construct the pair of tangent to the circle and measure their length .

Given: A circle whose centre is O and radius is 6 cm and a point P is 10 cm away from its centre.

To construct: To construct the pair of tangents to the circle and measure their lengths.



i. Join PO and bisect it. Let M be the mid-point of PO.

ii. Taking M as centre and MO as radius, draw a circle. Let it intersects the given circle at the points Q and R.

iii. Join PQ and PR.

Then PQ and PR are the required two tangents.

By measurement, PQ = PR = 8 cm

Justification: Join OQ and OR.

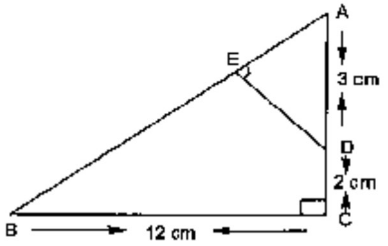
Since $\angle QPO$ and $\angle ORP$ are the angles in semicircles.

$\therefore \angle OQP = 90^\circ = \angle ORP$

Also, since OQ, OR are radii of the circle, PQ and PR will be the tangents to the circle at Q and R respectively.

∴ We may see that the circle with OP as diameter increases the given circle in two points. Therefore, only two tangents can be draw.

Q.36 In below Fig., ΔABC is right angled at C and DE ⊥ AB. Prove that ΔABC ~ ΔADE and Hence find the lengths of AE and DE.



Sol:

In ΔACB, by Pythagoras theorem

$AB^2 = AC^2 + BC^2$

$\Rightarrow AB^2 = (5)^{\ 2} + (12)^{\ 2}$

$\Rightarrow AB^2 = 25 + 144 = 169$

$\Rightarrow AB = \sqrt{169} = 13\ cm$

In ΔAED and ΔACB

∠A = ∠A [Common]

∠AED = ∠ACB [Each 90°]

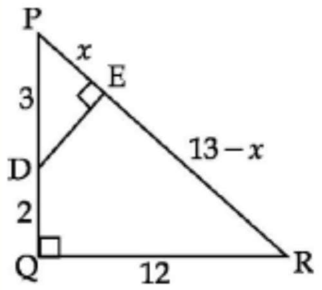
Then, ΔAED ~ ΔACB [By AA similarity]

$\therefore \frac{AE}{AC} = \frac{DE}{CB} = \frac{AD}{AB}$

$\Rightarrow \frac{AE}{5} = \frac{DE}{12} = \frac{3}{13}$

$\Rightarrow \frac{AE}{5} = \frac{3}{13}$ and $\frac{DE}{12} = \frac{3}{13}$

$\Rightarrow AE = \frac{15}{13}$ cm and $DE = \frac{36}{13}$ cm Or ANS:



In right ΔPQR, $PR^2 = PQ^2 + QR^2$

$= 25 + 144$

$\frac{PQ}{PE} = \frac{QR}{DE} = \frac{PR}{PD} \Rightarrow \frac{5}{x} = \frac{12}{y} = \frac{13}{3}$

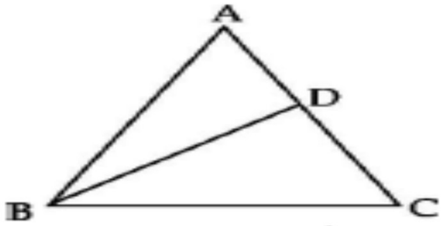
$\Rightarrow PE = \frac{15}{13}; DE = \frac{36}{13}$

OR

ABC is a triangle in which AB = AC and D is a point on AC such that BC² = AC × CD. Prove that BD = BC. **SOL:**

$BC^2 = AC \times CD$

$$\frac{BC}{AC} = \frac{CD}{BC} \quad \text{--------------------} \quad (1)$$



In Δ DBC and ΔBAC,

$$\frac{BC}{AC} = \frac{CD}{BC} \text{ From (1)}$$

$\angle BCD = \angle BCA$

ΔDBC ⊔ ΔBCA ….. by SAS similarity

$$\Rightarrow \frac{BD}{AB} = \frac{BC}{AC}$$

$$\frac{BD}{AB} = \frac{BC}{AC} \quad (\because AC = AB)$$

$\Rightarrow BD = BC$

Q.37 A train travels at a certain average speed for a distance of 63 km and then travels a distance of 72 km at an average speed of 6 km/h more than its original speed. If it takes 3 hours to complete the total journey, what is its original average speed ?

Solution : Let its original average speed be x km/h. Therefore,

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$$\frac{63}{x} + \frac{72}{x+6} = 3$$

$$\frac{7}{x} + \frac{8}{x+6} = \frac{3}{9} = \frac{1}{3}$$

$$\frac{7(x+6)+8x}{x(x+6)} = \frac{1}{3}$$

$$21\,(x+6) + 24x = x\,(x+6)$$

$$21x + 126 + 24x = x^2 + 6x$$

$$x^2 - 39x - 126 = 0$$

$$(x+3)\,(x-42) = 0$$

$$x = -3 \text{ or } x = 42$$

Since x is the average speed of the train, x cannot be negative. Therefore, $x = 42$. So, the original average speed of the train is 42 km/h.

OR

Solve $x^2 - \left(\sqrt{3}+1\right)x + \sqrt{3} = 0$ by the method of completing the square.

$$x^2 - \left(\sqrt{3}+1\right)x + \sqrt{3} = 0$$

$$x^2 - \left(\sqrt{3}+1\right)x = -\sqrt{3}$$

$$x^2 - 2\left(\frac{\sqrt{3}+1}{2}\right)x + \left(\frac{\sqrt{3}+1}{2}\right)^2 = -\sqrt{3} + \left(\frac{\sqrt{3}+1}{2}\right)^2$$

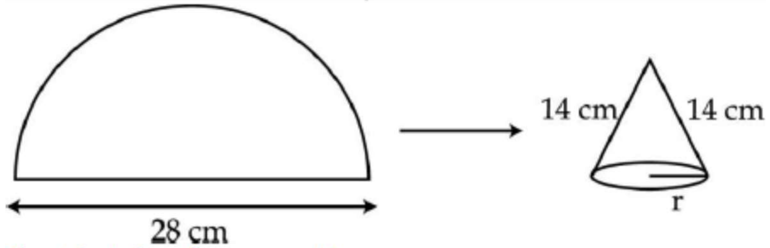
$$\left(x - \frac{\sqrt{3}+1}{2}\right)^2 = \frac{-4\sqrt{3} + \left(\sqrt{3}+1\right)^2}{4}$$

$$\left(x - \frac{\sqrt{3}+1}{2}\right)^2 = \left(\frac{\sqrt{3}-1}{2}\right)^2$$

$$x - \frac{\sqrt{3}+1}{2} = \pm\frac{\sqrt{3}-1}{2}$$

ANS: $x = \sqrt{3}$ and 1

Q.38 A semicircular thin sheet of metal of diameter 28cm is bent and an open conical cup is made. Find the capacity of the cup.



Slant height of cone = 14 cm

Circumference of sheet = πr

$$= \frac{22}{\cancel{7}} \times \overset{2}{\cancel{14}} = 44 \text{ cm}$$

Let 'r' be the radius of cone

$\therefore$ $2\pi r = 44 \Rightarrow r = 7$

$\therefore$ $h^2 = \sqrt{l^2 - r^2}$

$= \sqrt{196 - 49}$

ANS: $= \sqrt{147}$

$\therefore$ $h = 7\sqrt{3}$

Volume of cup = $\frac{1}{3}\pi r^2 h$

$$= \frac{1}{3} \times \frac{22}{\cancel{7}} \times \cancel{7} \times 7 \times 7\sqrt{3}$$

$$= \frac{1078\sqrt{3}}{3} \text{ cm}^3$$

OR

Water in a canal, 30 dm wide and 12 dm deep, is flowing with a speed of 10 km/hr. How much area will it irrigate in 30 minutes if 8 cm of standing water is required from irrigation.

Sol. Speed of water in the canal = 10 km. h = 10000 m.60 min $= \frac{500}{3}$ m/min.

$\therefore$ The volume of the water flowing out of the canal in 1 minute

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$= \left(\frac{500}{3} \times \frac{30}{10} \times \frac{12}{10}\right) \text{m}^2 = 600 \text{ m}^3$

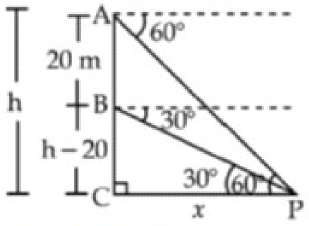
$\therefore$ In 30 min, the amount of water flowing out of the canal = $(600 \times 30) \text{ m}^3 = 600 \text{ m}^3$

If the required area of the irrigated land is × m^2, then the volume of water to be needed to irrigate the land

$= \left(x \times \frac{8}{100}\right) \text{m}^3 = \frac{2x}{25} \text{m}^3$ Hence, $\frac{2x}{25} = 18000$ $\Rightarrow$ $x = 18000 \times \frac{25}{2} = 225000$

Hence, the required area is 225000 m^2.

Q.39 From the top of a tower the angle of depression of an object on the horizontal ground is found to be 60°. On descending 20 m vertically downwards from the top of the tower, the angle of depression of the object is found to be 30°. Find the height of the tower.



Figure

In rt ΔACP

$\tan 60° = \frac{h}{x}$

$\sqrt{3}\, x = h$

$x = h/\sqrt{3}$ ——— (1)

In rt ΔBCP

$$\tan 30^\circ = \frac{h-20}{x}$$

$$\frac{1}{\sqrt{3}} = \frac{h-20}{h/\sqrt{3}} \text{ from (1)}$$

$$\frac{h}{3} = h - 20$$

$$h = 30 \text{ m}$$

$\therefore$ Height of the tower is 30 m

Q.40 If the median of the distribution given below is 28.5, find the values of x and y.

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	Total
Frequency	5	x	20	15	y	5	60

$ans-: x = 8, y = 7$

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बिना शिक्षा प्राप्त किये कोई व्यक्ति अपनी परम ऊँचाइयों को नहीं छू सकता.

10/12/2019 16:00

Target Mathematics by Dr. Agyat Gupta