Solution of Practice set-I^{st}

X^{th} class

Page No.: 1

Date:

section :- A

① Base = 100, S.Base = 100

S.B.D. = 1, Dev → −07

$(No.)^2 = S.B.D.[No. + Dev.]/(Dev.)^2$

$(93)^2 = 1[93 - 07]/(-07)^2$

$= 1 \times 86/49 \Rightarrow 8649$ Ans

② $\frac{5}{3x+2} + \frac{5}{2x+8} = 0$

Sum of the Denominator

$= 3x+2+2x+8$

$= 5x+10$

By Sutra Shunayam Samuchaye.

$5x+10=0$

$5x=-10$

$x = \frac{-10}{5} = -2$ Ans

③ $\frac{17}{8} = \frac{17}{2^3}$

$\Rightarrow \frac{17 \times 5^3}{2^3 \times 5^3} = \frac{17 \times 125}{(2\times5)^3}$

$\Rightarrow \frac{2125}{(10)^3} = \frac{2125}{1000} = 2.125$ Ans

④ $\sin^2 50° + \cancel{\sin}^2 40°$

$\sin^2(90-40°) + \sin^2 40°$

$\sin(90-\theta) = \cos\theta$

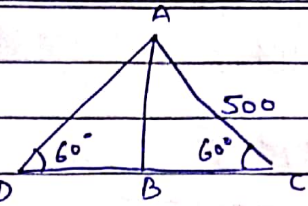
$\cos^2 40° + \sin^2 40°$

4 we know $\sin^2\theta + \cos^2\theta = 1$

then $\cos^2 40° + \sin^2 40° = 1$

Ans.

⑤



in $\triangle ABC$

$\sin\theta = \frac{P}{H}$

$\sin 60° = \frac{AB}{500}$

$\frac{\sqrt{3}}{\cancel{2}} = \frac{AB}{\cancel{500}\ 250}$

$AB = 250\sqrt{3}$ Ans.

⑥ Locus will be perpendicular Bisector of line segment.

⑦ it will be Diameter.

⑧ total Condition = 6 = {1,2,3,4,5,6}

favourable Condition for getting Prime No. = 3 = {2,3,5}

then $P(A) = \frac{3}{6} = \frac{1}{2}$ Ans.

⑨ Let bus fare is x₹ and train fare is y₹ then a/c to question :-

$10x + 50y = 65$

⑩ A/c to question total fare of 15 km will

$1 \times 5 + (15-1) \times 3 = 5 + 14 \times 3$

$= 5 + 42 = ₹47$

Section:- B

(1) $4532 \div 112$

$$\begin{array}{c|c|c} 2 & 45_{1}3. & \begin{array}{c}2\\5\end{array} \\ 11 & & \\ \hline \text{Qu.} \to & 40 & 52 \leftarrow \text{rem} \end{array}$$

(i) $45 \div 11 \to 4$ time rem 1

(ii) $13 - 4 \times 2 = 13 - 8 = 5$

(iii) $5 \div 11 \to 0$ time rem 5

(iv) $52 - 0 \times 2 = 52 - 0 = 52$

(2) Let $3+2\sqrt{5}$ is a rational No.

then $3+2\sqrt{5} = \frac{a}{b}$ where a & b are +ive integer then

$2\sqrt{5} = \frac{a}{b} - 3$.

& $\sqrt{5} = \frac{1}{2}\left(\frac{a}{b} - 3\right)$

$\because$ $a, b, 3, 1, 2$ all are integer then $\frac{1}{2}\left(\frac{a}{b} - 3\right)$ will be rational But we know $\sqrt{5}$ is an irrational No. that's why our assumption is wrong and $3+2\sqrt{5}$ will be irrational Number

(3) $l = 4$ cm, area of sector $= 12$

we know area of sector $= \frac{1}{2} \times l \times r$

$\cancel{12}^{6} = \frac{1}{\cancel{2}} \times \cancel{4}^{2} \times r$

then $r = 6$ cm.

(4) volume of Cone $= 16632 \text{ cm}^3$

height $= 9$ cm

$\frac{1}{3} \pi r^2 h = 16632$

$\frac{1}{\cancel{3}} \times \frac{22}{7} \times r^2 \times \cancel{9}^{3} = \cancel{16632}^{\cancel{756}} \; 252$

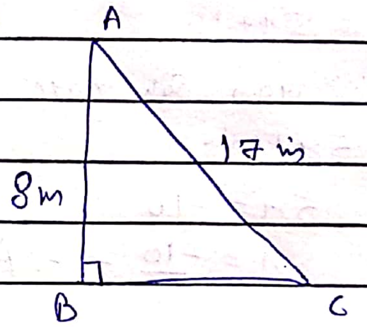
$r^2 = 252 \times 7$

$r^2 = 1764$

$r = \sqrt{1764}$

$r = 42$ cm.

(5)



in $\triangle ABC$

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

$17^2 = 8^2 + BC^2$

$289 - 64 = BC^2$

$BC^2 = 225$

$BC = \sqrt{225} = 15$ cm

Now area of green Path

$= \pi r^2$

$= \frac{22}{7} \times 15 \times 15$

$= 707.14 \text{ m}^2$

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Section :- C

① $P(x) = x^2 - 2x - 8 = 0$

$x^2 - (4-2)x - 8 = 0$

$x^2 - 4x + 2x - 8 = 0$

$x(x-4) + 2(x-4) = 0$

$(x-4)(x+2) = 0$

$x - 4 = 0$ | $x + 2 = 0$

$x = 4$ | $x = -2$

then $\alpha = 4$ | $\beta = -2$

Now sum of zero's $= 4 - 2 = 2$

$\alpha + \beta = -\frac{b}{a} = \frac{-(-2)}{1}$

$\alpha + \beta = 2$

& Product of zero's $= 4 \times -2 = -8$

and $\alpha\beta = \frac{c}{a} = \frac{-8}{1}$

$\alpha\beta = -8$

Relation varified.

② No. Between 250 & 1000 which are Divisible by 3 will

252, 255, 258 —— 999

then $a_n = a + (n-1)d$

$999 = 252 + (n-1) \times 3$

$999 - 252 = 3n - 3$

$747 + 3 = 3n$

$3n = 750$

$\Rightarrow n = \frac{750}{3} = 250$

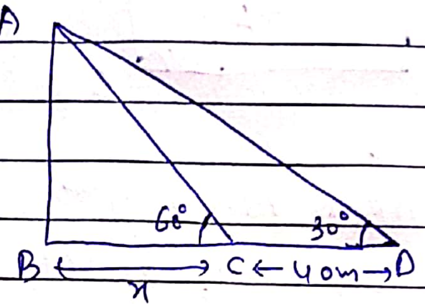
Now $S_n = S_{250} = \frac{n}{2}(a + l)$

$= \frac{\cancel{250}^{125}}{2}(252 + 999)$

then $S_{250} = 125 \times 1251$

$S_{250} = 156375$ Ans

③



in $\triangle ABC$

$\tan\theta = \frac{P}{b}$

$\tan 60° = \frac{AB}{x}$

$\sqrt{3} = \frac{AB}{x}$

$x = \frac{AB}{\sqrt{3}}$ —— ①st

in $\triangle ABD$

$\tan\theta = \frac{AB}{BD}$

$\tan\theta = \frac{AB}{x+40}$

$\tan 30° = \frac{AB}{x+40}$

$\frac{1}{\sqrt{3}} = \frac{AB}{x+40}$

$x + 40 = AB\sqrt{3}$

or $x = AB\sqrt{3} - 40$ —— ②

from eq ①st & ②nd

$\frac{AB}{\sqrt{3}} = AB\sqrt{3} - 40$

$\Rightarrow 40 = \frac{AB\sqrt{3}}{1} - \frac{AB}{\sqrt{3}}$

$40 = \frac{3AB - AB}{\sqrt{3}} = \frac{2AB}{\sqrt{3}}$

$\cancel{40}^{20} = \frac{\cancel{2}AB}{\sqrt{3}}$

$AB = 20\sqrt{3} = 20 \times 1.732$

$AB = 34.640$ m Ans.

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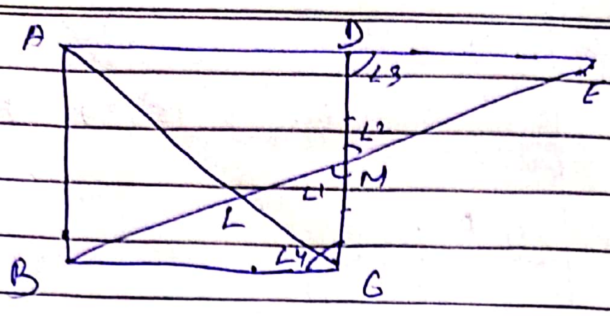
(4)



Given ABCD is a ||gm, M is mid Point of CD then DM = CM, and Joining Line M to B intersect AC at L and AD at E.

To prove $EL = 2BL$

Proof ∵ ABCD is || gm then
$AD = BC$ — ①st

Now in $\triangle DME$ & $\triangle CMB$

$DM = CM$ → given
$\angle 1 = \angle 2$ → V.opp. angle
$\angle 3 = \angle 4$ → A.I. Angle

then By ASA Rule
$\triangle DME \cong \triangle CMB$ By

CPCT $BC = DE$ — ②nd

Now In $\triangle ALE$ & $\triangle BLC$

$\angle ALE = \angle BLC$ → V.opp. angle
$\angle AEL = \angle LBC$ → A.I. Angle

By AA similarity rule
$\triangle ALE \sim \triangle CLB$

By CPST

$$\frac{AL}{CL} = \frac{LE}{LB} = \frac{AE}{CB}$$

$$\Rightarrow \frac{LE}{LB} = \frac{AD+DE}{BC}$$

then By eq. ①st & ②nd

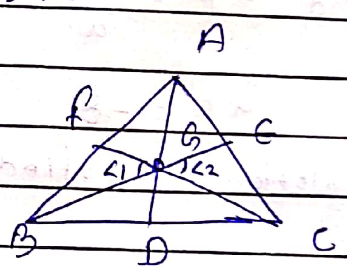
$$\frac{LE}{LB} = \frac{BC+BC}{BC} = \frac{2\cancel{BC}}{\cancel{BC}}$$

$$\boxed{LE = 2LB}$$

H.P.

(5) Given in $\triangle ABC$, any two medians are equal.

To prove $\triangle ABC$ will be isoscales $\triangle$



Proof Let BE & CF are two equal medians then

$BE = CF$ — ①

Do multiply eq. ① By $\frac{2}{3}$

$$\frac{2}{3}BE = \frac{2}{3}CF$$

$\Rightarrow BG = CG$ — ②

again Do multiply eq. ① By $\frac{1}{3}$

$$\frac{1}{3}BE = \frac{1}{3}CF$$

$GE = GF$ — ③

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Now in ΔFGB & ΔEGC

$FG = GE$ → from eq. ③rd

$\angle 1 = \angle 2$ → v.opp. angle.

$BG = CG$ → from eq. ④th

By SAS Rule

$\Delta FGB \cong \Delta EGC$

By CPCT $FB = EC$ —④

$\because \Delta FGB \cong \Delta EGC$

Now Do multiply eq. ④ By 2

$2FB = 2EC$ [∵ BE & CF are medians]

$AB = AC$

Now if $AB = AC$ then

ΔABC will an isoscales Δ.

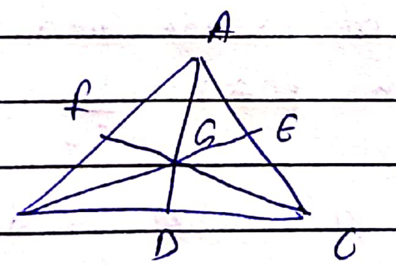
H.P.

OR

Given in ΔABC, AD, BE, CF are medians passes through point G.

To prove: $4(AD+BE+CF) > 3(AB+BC+AC)$

Proof



in ΔAGB

$AG + BG > AB$ [∵ sum of any two side is greater then third one]

But $AG = \frac{2}{3}AD$

$BG = \frac{2}{3}BE$

then

$\frac{2}{3}AD + \frac{2}{3}BE > AB$

$\frac{2}{3}(AD+BE) > AB$

or $AD + BE > \frac{3}{2}AB$ —①st

in the same way in ΔAGC & ΔBGC we can write

$AD + CF > \frac{3}{2}AC$ —②nd

$BE + CF > \frac{3}{2}BC$ —③rd

add eq. ①+②+③

$2AD + 2BE + 2CF > \frac{3}{2}(AB+BC+AC)$

$2(AD+BE+CF) > \frac{3}{2}(AB+BC+AC)$

or $4(AD+BE+CF) > 3(AB+BC+AC)$

H.P.

⑥ $\angle a = 65°$ & $\angle c = 91°$ → exterior angle property of cyclic quadrilateral

&

$\angle a + \angle d = 180°$ & $\angle c + \angle b = 180°$ angle sum property of cyclic Qu.

then

$65 + \angle d = 180$ | $91 + \angle b = 180°$

$\angle d = 180 - 65$ | $\angle b = 180 - 91$

$\angle d = 115°$ Ps. | $\angle B = 89°$ Ps.

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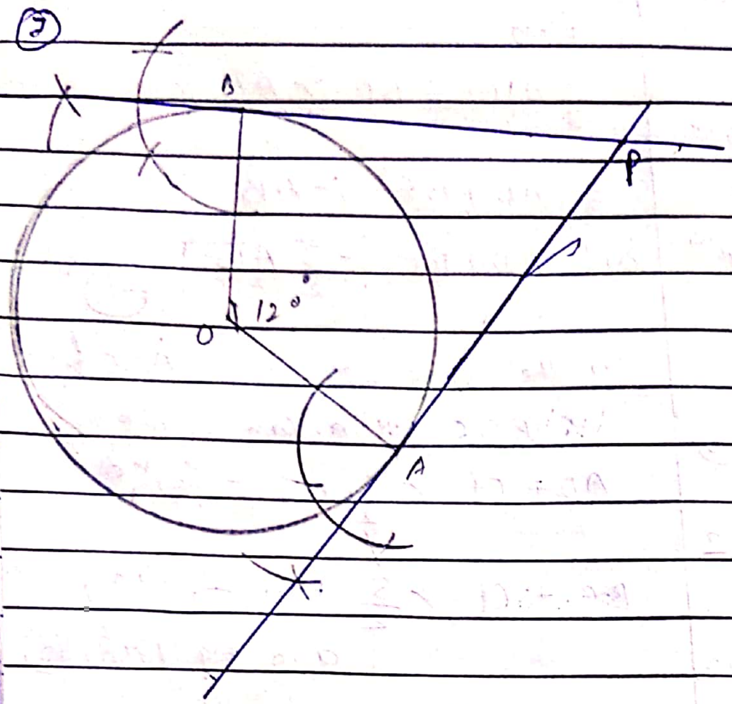
(7)



(9) $h_1 = 20m$,
Diameter = 7
then radius of well $= \frac{7}{2} m$

A/c to question
volume of well = volume of plateform

$\pi r^2 h_1 = l \times b \times h_2$

$\frac{22}{7} \times \frac{7}{2} \times \frac{7}{2} \times 20 = 22 \times 14 \times h_2$

$h_2 = 2.5 m$

(8) Cost of constructing a Boundary wall = ₹ 5280 at the rate of ₹ 24 per metre
then A/c to question
Length of Boundary wall $= 2\pi r = \frac{5280}{24}$ 220

$2 \times \frac{22}{7} \times r = 220$

$r = 35 m$

Now area of field $= \pi r^2$
$= \frac{22}{7} \times 35 \times 35$
$= 110 \times 35$
$= 3850 m^2$

Now cost of Ploughing
$= 3850 \times 0.50$
$=$ ₹ 1925 Ans.

(10) total No. of Condition = 52
(i) favourable condition for red colour = 26
then $P(A) = \frac{f.c.}{T.C.}$

$P(A) = \frac{26}{52} = \frac{1}{2}$ Ans

(ii) favourable condition of spade card = 13
then $P(A) = \frac{13}{52} = \frac{1}{4}$ Ans

(iii) favourable Condition for Jeck of red colour = 2
then $P(A) = \frac{2}{52} = \frac{1}{26}$ Ans

Section-D

(1) $2x+3y=8$; $x-2y=-3$

$2x = 8-3y$

$x = \frac{8-3y}{2}$

Put $y=0$

$x = \frac{8-3\times 0}{2}$

$x = \frac{8}{2} = 4$

Put $y=2$

$x = \frac{8-3\times 2}{2}$

$x = \frac{8-6}{2} = \frac{2}{2} = 1$

Put $y=4$

$x = \frac{8-3\times 4}{2}$

$x = \frac{8-12}{2} = -\frac{4}{2} = -2$

x	4	1	-2
y	0	2	4

$x = -3+2y$

Put $y=0$

$x = -3+2\times 0$

$x = -3+0 = -3$

Put $y=1$

$x = -3+2\times 1$

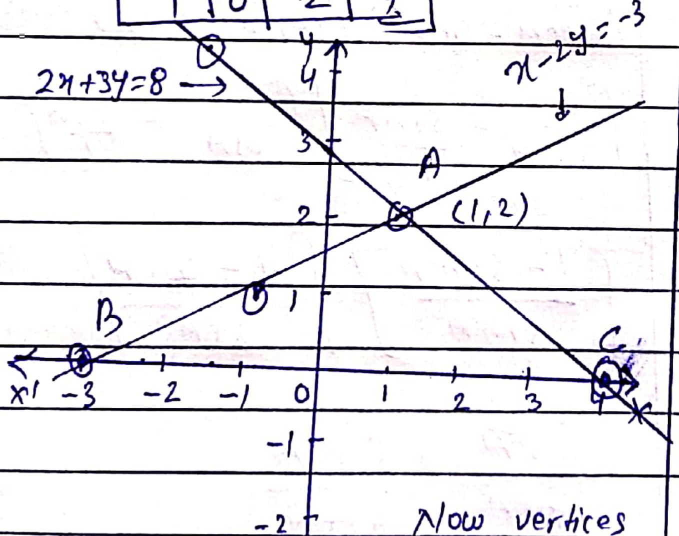
$x = -3+2 = -1$

Put $y=2$

$x = -3+2\times 2$

$x = -3+4 = 1$

x	-3	-1	1
y	0	1	2



Now vertices of ΔABC are

A(1, 2)

B(-3, 0)

C(4, 0)

(2) (i) $\sec\theta + \tan\theta = p$

then $\frac{p^2-1}{p^2+1} = \sin\theta$

L.H.S.

$$\frac{p^2-1}{p^2+1} = \frac{(\sec\theta+\tan\theta)^2-1}{(\sec\theta+\tan\theta)^2+1}$$

$$\frac{\sec^2\theta + 2\sec\theta\tan\theta + \tan^2\theta - 1}{\sec^2\theta + \tan^2\theta + 2\sec\theta\tan\theta + 1}$$

$$\frac{\sec^2\theta - 1 + 2\sec\theta\tan\theta + \tan^2\theta}{\sec^2\theta + 1 + \tan^2\theta + 2\sec\theta\tan\theta}$$

$\because \sec^2\theta - 1 = \tan^2\theta$

& $1+\tan^2\theta = \sec^2\theta$

then

$$\frac{\tan^2\theta + 2\sec\theta\tan\theta + \tan^2\theta}{\sec^2\theta + \sec^2\theta + 2\sec\theta\tan\theta}$$

$$\frac{2\tan^2\theta + 2\sec\theta\tan\theta}{2\sec^2\theta + 2\sec\theta\tan\theta}$$

$$\frac{\cancel{2}\tan\theta\,\cancel{(\tan\theta+\sec\theta)}}{\cancel{2}\sec\theta\,\cancel{(\sec\theta+\tan\theta)}}$$

$$\frac{\frac{\sin\theta}{\cos\theta}}{\frac{1}{\cos\theta}} \Rightarrow \sin\theta \text{ H.P.}$$

(ii) $\sqrt{\frac{\sec\theta+1}{\sec\theta-1}} = \cot\theta + \operatorname{cosec}\theta$

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L.H.S.

$$\sqrt{\frac{\sec\theta+1}{\sec\theta-1}}$$ Do rationalisation

$$\sqrt{\frac{(\sec\theta+1)(\sec\theta+1)}{(\sec\theta-1)(\sec\theta+1)}}$$

then By $(a-b)(a+b)=a^2-b^2$

$$\sqrt{\frac{(\sec\theta+1)^2}{\sec^2\theta-1}} = \sqrt{\frac{(\sec\theta+1)^2}{\tan^2\theta}}$$

$$\frac{\sec\theta+1}{\tan\theta} = \frac{\sec\theta}{\tan\theta} + \frac{1}{\tan\theta}$$

$$\Rightarrow \frac{\frac{1}{\cancel{\cos\theta}}}{\frac{\sin\theta}{\cancel{\cos\theta}}} + \frac{1}{\tan\theta}$$

$$\Rightarrow \frac{1}{\sin\theta} + \frac{1}{\tan\theta}$$

$\Rightarrow \operatorname{cosec}\theta + \cot\theta$ H.P.

:- OR :-

(2) (i) $\frac{\cos A}{\cos B} = m$ & $\frac{\cos A}{\sin B} = n$

then $(m^2+n^2)\cos^2 B = n^2$

L.H.S.

$(m^2+n^2)\cos^2 B$

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

$$\cos^2 A\left[\frac{1}{\cos^2 B} + \frac{1}{\sin^2 B}\right]\cos^2 B$$

$$\cos^2 A\left[\frac{\sin^2 B+\cos^2 B}{\cancel{\cos^2 B}\sin^2 B}\right]\cancel{\cos^2 B}$$

$$\cos^2 A \times \frac{1}{\sin^2 B}$$

$$\Rightarrow \frac{\cos^2 A}{\sin^2 B}$$

$$\Rightarrow \left(\frac{\cos A}{\sin B}\right)^2$$

$\therefore = n^2 \Rightarrow$ R.H.S.

H.P.

(ii) $(\operatorname{cosec}A - \sin A)(\sec A - \cos A) = \frac{1}{\tan A + \cot A}$

L.H.S.

$(\operatorname{cosec}A - \sin A)(\sec A - \cos A)$

$$\left[\frac{1}{\sin A} - \frac{\sin A}{1}\right]\left[\frac{1}{\cos A} - \frac{\cos A}{1}\right]$$

$$\left[\frac{1-\sin^2 A}{\sin A}\right]\left[\frac{1-\cos^2 A}{\cos A}\right]$$

$$\frac{\cos^2 A}{\cancel{\sin A}} \times \frac{\sin^2 A}{\cancel{\cos A}}$$

$\Rightarrow \cos A \sin A.$

R.H.S.

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

$$\frac{1}{\frac{\sin^2 A+\cos^2 A}{\cos A\sin A}} \Rightarrow \frac{\cos A\sin A}{\sin^2 A+\cos^2 A}$$

$$\Rightarrow \frac{\cos A\sin A}{1}$$

$$\Rightarrow \cos A\sin A \Rightarrow \text{L.H.S.}$$

H.P.

3) (i) $P(a\cos\theta, b\sin\theta)$ & $Q(-a\sin\theta, b\cos\theta)$

L.H.S. $\Rightarrow OP^2+OQ^2$

where O is origin then

$$OP^2=\left(\sqrt{(a\cos\theta)^2+(b\sin\theta)^2}\right)^2$$

$$OP^2=a^2\cos^2\theta+b^2\sin^2\theta \quad \text{—(1)}^{st}$$

$$\& \; OQ^2=\left(\sqrt{(-a\sin\theta)^2+(b\cos\theta)^2}\right)^2$$

$$OQ^2=a^2\sin^2\theta+b^2\cos^2\theta \quad \text{—(2)}$$

add eq (1)st & (2)nd

$$OP^2+OQ^2=a^2\cos^2\theta+b^2\sin^2\theta+a^2\sin^2\theta+b^2\cos^2\theta$$

$$OP^2+OQ^2=a^2(\cos^2\theta+\sin^2\theta)+b^2(\sin^2\theta+\cos^2\theta)$$

$$OP^2+OQ^2=a^2+b^2$$

H.P.

(ii) Let line segment AB A(11, 9) & B(1, 2) trisected by point P & Q then co-ordinate of point P will :-

m : n
1 : 2

A $(11, 9)$ (x_1, y_1) —— P —— B $(1, 2)$ (x_2, y_2)

$$P\left[\frac{mx_2+nx_1}{m+n}, \frac{my_2+ny_1}{m+n}\right]$$

$$P\left[\frac{1\times1+2\times11}{1+2}, \frac{1\times2+2\times9}{1+2}\right]$$

$$P\left[\frac{1+22}{3}, \frac{2+18}{3}\right]$$

$$P\left[\frac{23}{3}, \frac{20}{3}\right]$$

m : n
2 : 1

A $(11, 9)$ (x_1, y_1) —— Q —— B $(1, 2)$ (x_2, y_2)

in the same way point

$$Q\left[\frac{2\times1+1\times11}{2+1}, \frac{2\times2+1\times9}{2+1}\right]$$

$$Q\left[\frac{2+11}{3}, \frac{4+9}{3}\right]$$

$$Q\left[\frac{13}{3}, \frac{13}{3}\right] \text{ A.}$$

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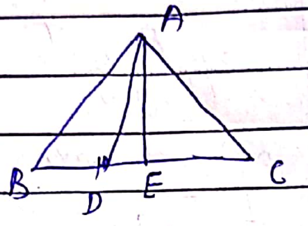
(4) Given: D is any point on the side BC of an equilateral $\triangle ABC$ such that

$$BD = \frac{1}{3}BC$$

to Prove: $9AD^2 = 7AB^2$



Construction: Draw $AE \perp BC$

Proof: $\because \triangle ABC$ is an eq. $\triangle$

then $AB = BC = AC$ — (1)st

& $BD = \frac{1}{3}BC \rightarrow$ given — (2)nd

from 1st & (2)nd

$BD = \frac{1}{3}AB$ — (3)rd

again Altitude in equilateral $\triangle$ Bisect the Base then

$BE = EC = \frac{BC}{2}$ — (4)th

from (1)st & (4)th

$BE = EC = \frac{AB}{2}$ — (5)th

Now in $\triangle ABE$

$AB^2 = BE^2 + AE^2$ — (6)

from eq. (5) & (6)

$AB^2 = \left(\frac{AB}{2}\right)^2 + AE^2$

$AB^2 = \frac{AB^2}{4} + AE^2$

$AE^2 = \frac{AB^2}{1} - \frac{AB^2}{4} = \frac{4AB^2 - AB^2}{4}$

$AE^2 = \frac{3AB^2}{4}$ — (7)

again in $\triangle ADE$

$AD^2 = AE^2 + DE^2$

$AD^2 = AE^2 + [BE - BD]^2$ — (8)

from eq. (5), (3) & (8)

$AD^2 = AE^2 + \left[\frac{AB}{2} - \frac{AB}{3}\right]^2$

$AD^2 = AE^2 + \left[\frac{3AB - 2AB}{6}\right]^2$

$AD^2 = AE^2 + \left(\frac{AB}{6}\right)^2$

$AE^2 = AD^2 - \frac{AB^2}{36}$ — (9)

from eq. (7) & (9)

$\frac{3AB^2}{4} = AD^2 - \frac{AB^2}{36}$

$\frac{3AB^2}{4} + \frac{AB^2}{36} = AD^2$

$\frac{27AB^2 + AB^2}{36} = AD^2$

$\cancel{28}^{7}AB^2 = \cancel{36}^{9}AD^2$

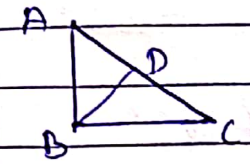
$\boxed{7AB^2 = 9AD^2}$ H.P.

or

(4) given :- $\triangle ABC$ is right angle $\triangle$.

to prove :- $AC^2 = AB^2 + BC^2$

Const :- Draw $AD \perp AC$



Proof :- in $\triangle ABC$ & $\triangle ADB$

$\angle A = \angle A \rightarrow$ Common

$\angle B = \angle D = 90^\circ \rightarrow$ each

By AA Rule

$\triangle ABC \sim \triangle ADB$

then By CPST

$$\frac{AB}{AD} = \frac{BC}{DB} = \frac{AC}{AB}$$

$\Rightarrow AB^2 = AD \times AC$ — ①st

again in $\triangle ABC$ & $\triangle BDC$

$\angle C = \angle C \rightarrow$ Common

$\angle B = \angle D = 90^\circ \rightarrow$ each

by AA Rule

$\triangle ABC \sim \triangle BDC$

By CPST

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

$BC^2 = AC \times DC$ — ②

add eq ①st & ②nd

$AB^2 + BC^2 = AD \times AC + AC \times DC$

$AB^2 + BC^2 = AC[AD + DC]$

But $AD + DC = AC$

then

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

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

H.P.

Q. (5)

Marks obtained	No. of students
0-10	5
10-20	12 f_0
l 20-30	14 f_1
30-40	10 f_2
40-50	8
50-60	6

$\because$ Highest frequency is 14 then mode class interval will 20-30 then

$l = 20$, $f_1 = 14$, $f_0 = 12$, $f_2 = 10$

& Mode $= l + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times h$

$= 20 + \frac{14-12}{2\times14-12-10} \times 10$

$= 20 + \frac{2 \times 10}{28-22}$

$= 20 + \frac{20}{6} \Rightarrow 20 + 3.33$

$= 23.33$ Ans

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'or'

Q.5

x_i	f_i	$x_i \times f_i$
0	46	0
1	x	x
2	y	$2y$
3	25	75
4	10	40
5	5	25
Sum	200	$140+x+2y$

$\Sigma f_i = 200$

$86 + x + y = 200$

$x + y = 200 - 86$

$x + y = 114$ — ① st

Now $\bar{x} = \dfrac{\Sigma f_i x_i}{\Sigma f_i}$

$\bar{x} = 1.46$

then

$1.46 = \dfrac{140+x+2y}{200}$

$292\cancel{.00} = 140 + x + 2y$

$x + 2y = 292 - 140 = 152$

$x + 2y = 152$ — ② nd

from ① st & ② nd

$x + 2y = 152$

$x + y = 114$

$y = 38$

$y = 38$ Put in eq ① st

$x + 38 = 114$

$x = 114 - 38$

$x = 76$

then unknown frequency are 38 & 76 Ans

— ! END ! —

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