FULL PORTION TEST SERIES 2019 – 2020.

MATHS

SECTION I (40)

[ANSWERS]

1.

a.
$S_n = \frac{n}{2}[2a + (n-1)d]$

$0 = \frac{15}{2}[2a + (14)d]$

$0 = 2a + 14d$

$0 = a + 7d$

$$\begin{array}{rl} a + 3d & = 12 \\ -\ a + 7d & = 0 \\ \hline -4d & = 12 \end{array}$$

$d = -3$

$a + 7d = 0$

$a - 21 = 0$

$a = \underline{\underline{21}}$

$t_{12} = a + 11d$

$= 21 + 11(-3)$

$= 21 - 33$

$= \underline{\underline{-12}}$

b.

i. **2×1**

ii. **Let $X = \begin{bmatrix} x \\ y \end{bmatrix}$**

$$\begin{bmatrix} 6 & -2 \\ 2 & 3 \end{bmatrix}\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 10 \\ -4 \end{bmatrix}$$

$$\begin{bmatrix} (6 \times x) + (-2 \times y) \\ (2 \times x) + (3 \times y) \end{bmatrix} = \begin{bmatrix} 10 \\ -4 \end{bmatrix}$$

$$\begin{bmatrix} (6x - 2y) \\ (2x + 3y) \end{bmatrix} = \begin{bmatrix} 10 \\ -4 \end{bmatrix}$$

$6x - 2y = 10$

$(3x - y = 5) \times 3$

$9x - 3y = 15$ .... (i)

$2x - 3y = -4$ .... (ii)

Adding equation (i) and (ii)

$$\begin{array}{rl} 9x - 3y & = 15 \\ +\ 2x + 3y & = -4 \\ \hline 11x & = 11 \end{array}$$

$x = 1$

$3x - y = 5$

$3 - y = 5$

y **= 3 – 5**

y **= – 2**

X $= \begin{bmatrix} 1 \\ -2 \end{bmatrix}$

c. **2y – 3 < y + 1 ≤ 4y + 7; y ϵ R**

2y – 3 < y + 1 ; y + 1 ≤ 4y + 7

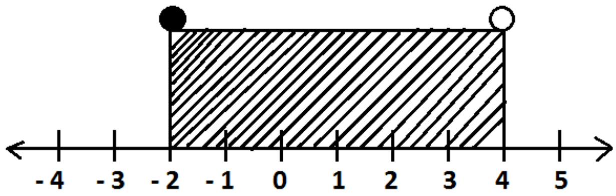
– 3 – 1 < y – 2y ; y – 4y ≤ 7 – 1

– 4 < – y ; – 3y ≤ 6

4 > y ; y ≥ – 2

– 2 ≤ y < 4

S.S = {y: – 2 ≤ y < 4 ; y ϵ R}



2.

a. **n (s)** **= 31**

No. of days in week **= 7**

If first of January is Monday **= 1, 8, 15, 22, 29**

If second of January is Monday **= 2, 9, 16, 23, 30**

If third of January is Monday **= 3, 10, 17, 24, 31**

So no. weeks with 5 Mondays **= 3 n (A)**

i. **Probability (leap year)** $= \frac{no.of\ favourable\ outcomes}{total\ no.of\ outcomes}$

$= \frac{n\ (A)}{n\ (S)}$

$= \frac{3}{7}$

ii. **For a non-leap year, the probability will be the same become January has the same number of days.**$= \frac{3}{7}$

b. **(k + 2) x^2 – kx + 6** **= 0**

(k + 2) $(3)^2$ – (k) (3) + 6 **= 0**

(k + 2) (9) – 3k + 6 **= 0**

9k + 18 – 3k + 6 **= 0**

6k + 24 **= 0**

6k **= – 24**

k **= – 4**

(k + 2) x^2 – kx + 6 **= 0**

(– 4 + 2) x^2 – (– 4) x + 6 **= 0**

– 2x^2 + 4x + 6 **= 0**

a **= – 2**

b **= 4**

c **= 6**

x $= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$= \frac{-(4) \pm \sqrt{(4)^2 - 4\,(-2)(6)}}{2\,(-2)}$

$= \frac{-4 \pm \sqrt{16 + 48}}{-4}$

$= \frac{-4 \pm 8}{-4}$

$= \frac{+4(-1 \pm 2)}{-4}$

$= \frac{-1 \pm 2}{-1}$

x $= \frac{-1+2}{-1}$ Or x $= \frac{-1-2}{-1}$

$= \frac{1}{-1}$ Or $= \frac{-3}{-1}$

= – 1 Or = 3

x = {– 1, 3}

c.

C.I.	Continuous C.I.	x	f	d	t	Ft
0 – 9	– 0.5 – 9.5	4.5	4	– 40	– 4	– 16
10 – 19	9.5 – 19.5	14.5	6	– 30	– 3	– 18
20 – 29	19.5 – 29.5	24.5	12	– 20	– 2	– 24
30 – 39	29.5 – 39.5	34.5	6	– 10	– 1	– 6
40 – 49	39.5 – 49.5	44.5	7	0	0	0
50 – 59	49.5 – 59.5	54.5	5	+ 10	1	5
60 – 69	59.5 – 69.5	64.5	2	+ 20	2	4
70 – 79	69.5 – 79.5	74.5	8	+ 30	3	24

∑f = 50

∑f = – 64 + 33

= – 31

$\overline{x}$ $= A + \frac{\sum ft}{\sum f} \times i$

$= 44.5 + \frac{-31}{50} \times 10$

= 44.5 – 6.2

= <u>38.3</u>

3.

a. $\frac{a^3 + 3ab^2}{3a^2b + b^3} = \frac{x^3 + 3xy^2}{3x^2y + y^3}$

$\frac{a^3 + 3ab^2 + 3a^2b + b^3}{a^3 + 3ab^2 - 3a^2b - b^3} = \frac{x^3 + 3xy^2 + 3xy^2 + y^3}{x^3 + 3xy^2 - 3x^2y - y^3}$

$\frac{(a+b)^3}{(a-b)^3} = \frac{(x+y)^3}{(x-y)^3}$

Taking cube root on both sides

$\frac{a+b}{a-b} = \frac{x+y}{x-y}$ (By C and D)

$\frac{a+b+a-b}{a+b-a+b} = \frac{x+y+x-y}{x+y-x+y}$

$\frac{2a}{2b} = \frac{2x}{2y}$

ya = xb (By alternate)

$\frac{y}{b} = \frac{x}{a}$

<u>Hence proved</u>

b. n = 3 years

= 36 months

r = 8%

I = Rs. 1776

P =?

MV =?

I	$= \dfrac{P \times n(n+1) \times r}{2 \times 12 \times 100}$
1776	$= \dfrac{P \times 36 \times 37 \times 8}{2 \times 12 \times 100}$
16×25	= P
∴ P	= Rs. 400
MV	$= P \times n + I$
MV	$= 400 \times 36 + 1776$
MV	= 14400 + 1776
MV	= Rs. 16176

c.

f (x)	$= x^3 + 2x^2 - 5ax - 7$
let (x + 1)	= 0
x	= – 1
f (x)	= R, By R. theorem
f (x)	$= x^3 + 2x^2 - 5ax - 7$
	$= (-1)^3 + 2(-1)^2 - 5(a)(-1) - 7$
	$= -1 + 2(1) + 5a - 7$
	$= -1 + 2 + 5a - 7$
P	= 5a – 6
f (x)	$= x^3 + ax^2 - 12x + 6$
x – 2	= 0
x	= 2
f (x)	= R; By R. theorem
	$= (2)^3 + a(2)^2 - 12(2) + 6$
	= 8 + a (4) – 24 + 6
	= 8 + 4a – 18
Q	= 4a – 10
2P + Q	= 6
2 (5a – 6) + (4a – 10)	= 6
10a – 12 + 4a – 10	= 6
14a – 22	= 6
14a	= 28
a	= 2

4.

a. **Given:**

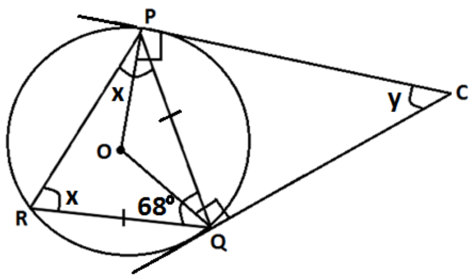
i. PQ = RQ

ii. ∠ RQP = 68°

To find:

i. x

ii. y



	Statement	Reason
1.	In Δ RPQ,	
i.	PQ = RQ	Given
ii.	∠ QRP = ∠ QPR = a	Angles opposite equal sides are equal
iii.	In Δ RPQ,	
	∠ QRP + ∠ QPR + ∠ RQP = 180°	Sum of the angles of triangle is 180°
	a + a + 68° = 180°	
	2a = 112°	
	a = 56°	

2.	**∠ QOP**	**= 2 ∠ QRP** **= 2 × 56°**	**Angles in the same segment**
	∠ QOP	**= 112°**	
3.	**In Δ POQ,**		
i.	**PO**	**= QO**	**Radii of same circle angles opposite equal sides are equal.**
ii.	**∠ OQP = ∠ OPQ**	**= b**	
iii.	**b + b + 112°**	**= 180°**	
	2b	**= 68**	
	b	**= 32°**	**Tangent perpendicular to radius at point of contact.**
4.	**∠ QPC = ∠ OQC**	**= 90°**	**By addition property**
5.	**∠ QPC**	**= ∠ OPC – ∠ OPQ** **= 90° – 32°** **= 48°**	
	∠ QPC = ∠ PQC	**= 48°**	**Sum of all angles of triangle is 180°.**
	48° + 48° + y	**= 180°**	
	y	**= 84°**	

b. **A to B:**

Meerut (UP) to Ratlam (MP) – Inter-state: IGST

Selling price = 15,000

IGST 18% $= \frac{18}{100} \times 15{,}000$

= 2,700

Amount of bill = 15,000 + 2,700

= Rs. 17,700

B to C:

Ratlam (MP) to Jabalpur (MP) – Inter-state: (CGST and SGST)

Cost price = 15,000

Profit = 3,000

Selling price = 18,000

CGST 9% $= \frac{9}{100} \times 18{,}000$

= 1,620

SGST 9% $= \frac{9}{100} \times 18{,}000$

= 1,620

Total tax = 3,240

Net tax = 3,240 – 2,700

= <u>540</u>

Amount of bill = 18,000 + 3,240

= Rs. <u>21,240</u>

c. $\frac{24}{18-x} - \frac{24}{18-x} = 1$

$24\left(\frac{1}{18-x} - \frac{1}{18+x}\right) = 1$

$24\left(\frac{(18+x)-(18-x)}{(18-x)(18+x)}\right) = 1$

$24\left(\frac{18+x-18+x}{324-x^2}\right) = 1$

$24\left(\frac{2x}{324-x^2}\right) = 1$

484 = 324 – x^2

x^2 + 484 – 324 = 0

x^2 + 54x – 64 – 324 = 0

(x+ 54) (x – 6) = 0

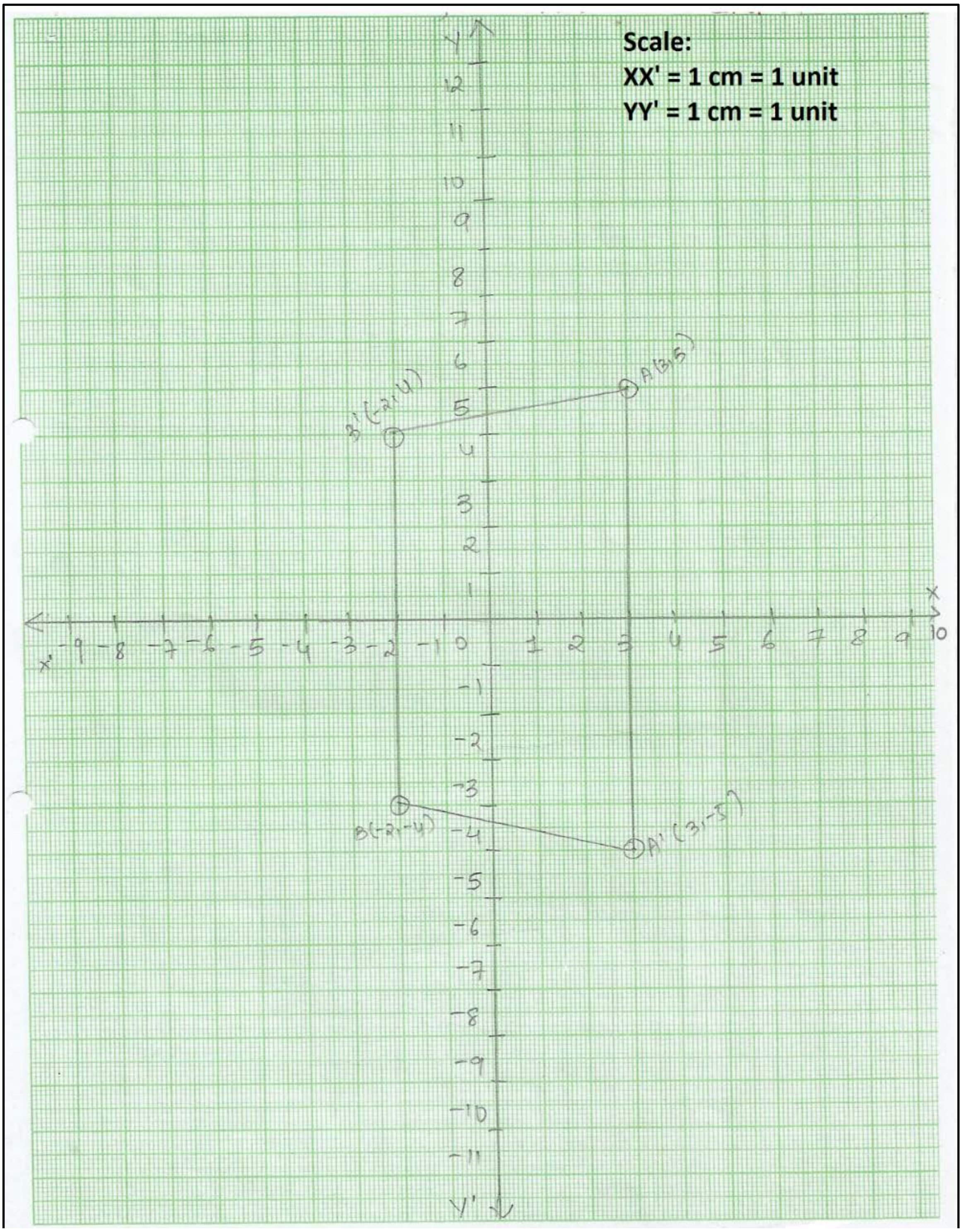
x = 6 x = – 54

Ignoring negative

∴x =6 km/hr.

d.

i. **A' (3, – 5)**
ii. **B' (– 2, 4)**
iii. **Trapezium**
iv. **(– 2, 0), (3, 0)**



5.

a. **Given:**

i. **∠ BAC = ∠ BDA = ∠ CDA = 90°**

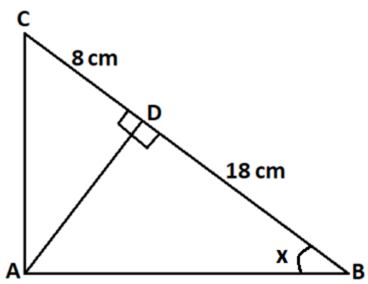
ii. **CD = 8 cm**

iii. **BD = 18 cm**

To find:

i. **AD**

ii. $\frac{A\,(\Delta\, ADB)}{A\,(\Delta\, CDA)}$



TPT: Δ ADB ∼Δ CDA

	Statement	Reason
1.	Let $\angle$ CBA = x	
2.	In Δ CBA,	
i	$\angle$ ACB = 180 – (90 + x) = (90 – x)°	Sum of angles of triangle is 180°
3.	In Δ ADB,	
i	$\angle$ DAB = 180 – (90 + x) = (90 – x)°	Sum of angles of triangle is 180°
4.	In Δ ADB and Δ CDA	
i	$\angle$ ADB = $\angle$ CDA = 90°	Given
ii	$\angle$ DCA = $\angle$ DAB	From 2(i) and 3 (i)
iii	Δ ADB ~Δ CDA	By AA postulate
5.	$\frac{AD}{CD} = \frac{AB}{CA} = \frac{DB}{DA}$ $AD^2 = CD \times DB$ AD $= \sqrt{18 \times 8}$ AD $= \sqrt{144}$ AD = **12cm**	Corresponding sides of similar triangle are in proportional
6.	$\frac{A(\Delta ADB)}{A(\Delta CDA)} = \frac{AD^2}{CD^2}$ $= \frac{12 \times 12}{8 \times 8}$ $= \frac{9}{4}$ A (Δ ADB): A (Δ CDA) = **9: 4**	When two triangle are similar, ratio of their angle is equal to ratio of the square on their corresponding sides.

b. a = 45

d = 41 – 45
= – 4

first negative term = – 3

$\therefore t_n$ = – 3

a + (n – 1) d = – 3

45 + (n – 1) (– 4) = – 3

– 4n + 4 = – 3 – 45

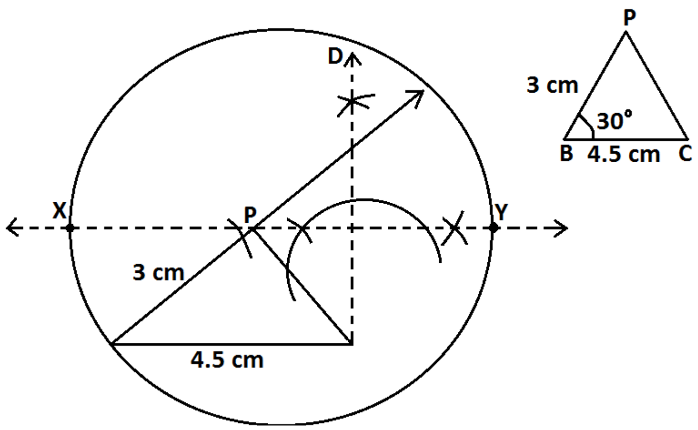
– 4n + 4 = – 3 – 45

– 4n = – 48 – 4

– 4n = – 52

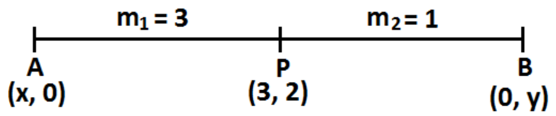
n = 13

c.



6.

a.



$\alpha = \frac{m_1x_2 + m_2x_1}{m_1 + m_2}$; $\beta = \frac{m_1y_2 + m_2y_1}{m_1 + m_2}$

$3 = \frac{3\,(0) + 1(x)}{3 + 1}$; $2 = \frac{3\,(y) + 1(0)}{3 + 1}$

$3 = \frac{0 + x}{4}$; $2 = \frac{3y + 0}{4}$

$x = 12$; $\frac{8}{3} = y$

A (x, 0) = (12, 0) **B (0, y) = $(0, \frac{8}{3})$**

b. **F.V.** = Rs. 26

n = ?

r = 10%

MV = Rs. 28

I = Rs. 20020

D = ?

R = ?

i. I = MV × n

20020 = 28 × n

$n = \frac{20020}{28}$

= <u>715 shares</u>

ii. $D = \frac{FV \times n \times r}{100}$

$= \frac{26 \times 715 \times 10}{100}$

= <u>Rs. 1895</u>

iii. FV × r = MV × R

26 × 10 = 28 × R

$\frac{26 \times 10}{28} = R$

$R = \frac{65}{7}$

$R = 9\frac{2}{7}\,\%$

c.

i. **K = 1:4500**

ii. **Height of model** = 90cm

$k = \frac{height\ of\ model}{actual\ height}$

$\frac{1}{4500} = \frac{90}{actual\ height}$

Actual height = 90 × 4500

= 405000cm

= <u>4050 m</u>

iii. $K^3 = \frac{vol.of\ model}{vol.of\ actual}$

$(\frac{1}{4500})^3 = \frac{x}{1800 \times 100 \times 100}$

$\frac{18 \times 100 \times 100 \times 100}{4500 \times 4500 \times 4500} = x$

$\frac{18}{45 \times 45 \times 45} = x$

$0.00001975 = x$

$\underline{1.975 \text{ X } 10^5 cm^3 = x}$

7.

a. **x + 2 is a factor**

$x + 2 = 0$

$x = -2$

$f(x) = 0$

$f(-2) = 0$

$f(x) = (3x + 4)^3 - (5x + a)^3$

$f(-2) = [3(-2) + 4]^3 - [5(-2) + 9]^3$

$0 = (-6 + 4)^3 - (-10 + 9)^3$

$0 = (-2)^3 - (-10 + a)^3$

$0 = (-2)^3 - (-10 + a)^3$

$(-10 + a)^3 = (-2)^3$

$-10 + a = -2$

$a = -2 + 10$

$a = \underline{\underline{8}}$

b. **L.H.S.**

$= \frac{cos^2A + tan^2A - 1}{sin^2A}$

$= \frac{cos^2A + tan^2A - 1\left(cos^2A + sin^2A\right)}{sin^2A}$

$= \frac{cos^2A + tan^2A - cos^2A - sin^2A}{sin^2A}$

$= \frac{\frac{sin^2A}{cos^2A} - sin^2A}{sin^2A}$

$= \frac{sin^2A - sin^2A\, cos^2A}{sin^2A\, .cos^2A}$

$= \frac{sin^2A\,(1 - cos^2A)}{sin^2A\, .\, cos^2A}$

$= \frac{sin^2A}{cos^2A}$

$= tan^2 A$

= R.H.S

L.H.S = R.H.S

<u>Hence proved</u>

c. $\frac{\sqrt{x+1} + \sqrt{x-1}}{\sqrt{x+1} - \sqrt{x-1}} = \frac{4x - 1}{2}$ **(By C and D)**

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

$\frac{\sqrt{x+1} + \sqrt{x-1} + \sqrt{x+1} - \sqrt{x-1}}{\sqrt{x+1} + \sqrt{x-1} - \sqrt{x+1} + \sqrt{x-1}} = \frac{4x + 1}{4x - 3}$

$\frac{2\sqrt{x+1}}{2\sqrt{x-1}} = \frac{4x + 1}{4x - 3}$

Squaring both sides,

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

$\frac{x+1}{x-1} = \frac{16x^2+8x+1}{16x^2-24x+9}$

$\frac{x+1+x-1}{x+1-x+1} = \frac{16x^2+8x+1+16x^2-24x+9}{16x^2+8x+1-16x^2+24x-9}$

$\frac{2x}{2} = \frac{32x^2-16x+10}{32x-8}$

$x = \frac{32x^2-16x+10}{32x-8}$

$x(32x-8) = 32x^2-16x+10$

$32x^2-8x = 32x^2-16x+10$

$8x = 10$

$x = \frac{10}{8}$

$x = 1\frac{1}{4}$

8.

a. **Let the numbers be a – d, a, a + d**

$a-d+a+a+d = 15$

$3a = 15$

$a = 5$

G.P: a – d + 1, a + 4, a + d + 19

5 – d + 1, 5 + 4, 5 + d + 19

6 – d, 9, 24 + d

$\frac{9}{6-d} = \frac{24+d}{9}$

$81 = (6-d)(24+d)$

$81 = 6(24+d) - d(24+d)$

$81 = 144+6d-24d-d^2$

$81 = 144-18d-d^2$

$d^2+18d-63 = 0$

$d^2+21d-3d-63 = 0$

$d(d+21)-3(d+21) = 0$

$(d+21)(d-3) = 0$

$d+21 = 0$ Or $d-3 = 0$

$d = -21$ Or $d = 3$

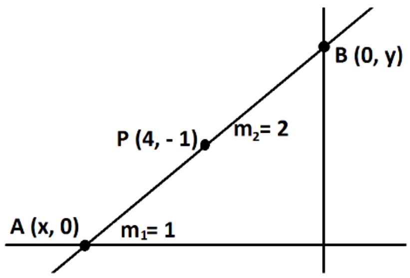
$a-d+1 = 5-21+1 = -15$ | $a-d+1 = 5-3+1 = 3$

$a+4 = 5+4 = 9$ | $a+4 = 5+4 = 9$

$a+d+19 = 5-21+19 = 3$ | $a+d+19 = 5+3+19 = 27$

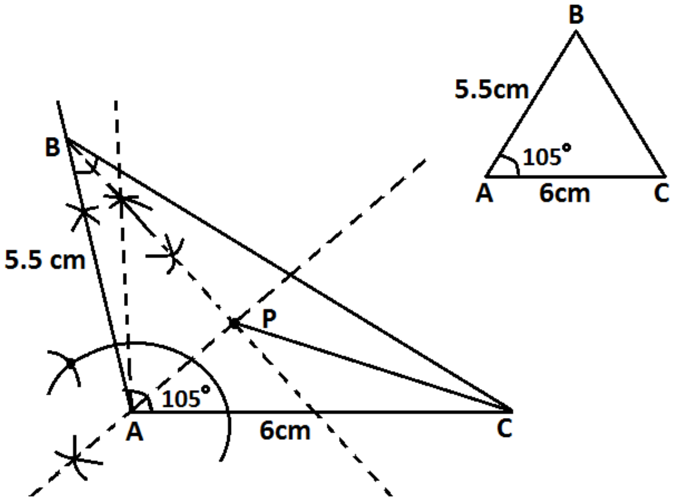
(3, 9, – 15) | **(3, 9, 27)**

b.



α	$= \frac{m_1x_2 + m_2x_1}{m_1 + m_2}$	;	β	$= \frac{m_1y_2 + m_2y_1}{m_1 + m_2}$	
4	$= \frac{(1)(0) + (2)(x)}{1+2}$;		-1	$= \frac{(1)(y) + (2)(0)}{1+2}$	
4	$= \frac{0 + 2x}{3}$;	-1	$= \frac{y+0}{3}$		
12	= 2x	;	-3	= y	
x	= 6	;	y	$= -3$	
A (x, 0)		= (6, 0)			
B (0, y)		= (0, – 3)			

c.



PC = 4.9 cm

9.

a.

$$a = \frac{1}{3}$$

$$r = \frac{1}{9} \div \frac{1}{3}$$

$$r = \frac{1}{3}$$

$$t_n = ar^{n-1}$$

$$\frac{1}{19683} = \frac{1}{3}\left(\frac{1}{3}\right)^{n-1}$$

$$\frac{3}{19683} = \left(\frac{1}{3}\right)^{n-1}$$

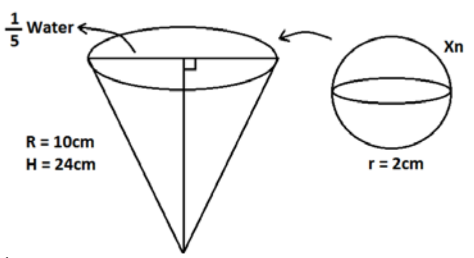
$$\frac{1}{6561} = \left(\frac{1}{3}\right)^{n-1}$$

$$\left(\frac{1}{3}\right)^{8} = \left(\frac{1}{3}\right)^{n-1}$$

$$n - 1 = 8$$

$$n = 9$$

b.



$\frac{1}{5}$ **(volume of cone)** $=$ **n $\times$ volume of sphere**

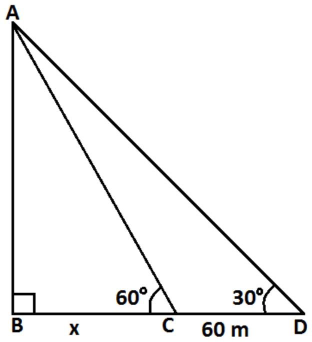
$\frac{1}{5} \times \frac{1}{3}\pi R^2 H = n \times \frac{4}{3}\pi r^3$

$\frac{1}{5} \times 10 \times 10 \times 24 = n \times 4 \times 2 \times 2 \times 2$

$n = \frac{2 \times 10 \times 24}{4 \times 2 \times 2 \times 2}$

n = **15**

c. In Δ ABC,



$\tan 60° = \frac{AB}{BC}$

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

$x\sqrt{3} = AB$ …….. (i)

In Δ ABD,

$\tan 30° = \frac{AB}{BD}$

$\frac{1}{\sqrt{3}} = \frac{AB}{x+60}$

$\frac{x+60°}{\sqrt{3}} = x\sqrt{3}$

x + 60° = 3x

3x – x = 60°

2x = 60°

x = 30m

AB $= x\sqrt{3}$

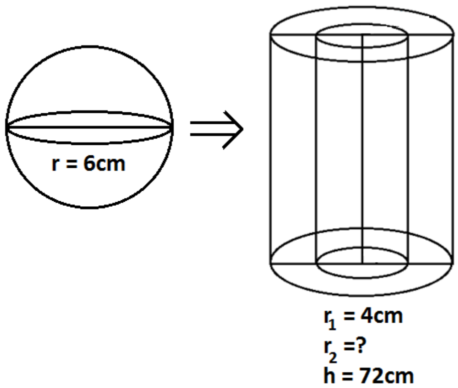
$= 30 \times \frac{1732}{1000}$

= 51.96 m

= **52 m**

10.

a. $\frac{4}{3}\pi r^3 = \pi h (r_1^2 - r_2^2)$



$\frac{4}{3} \times 6 \times 6 \times 6 = 72 (4^2 - r_2^2)$

$16 - r_2^2 = 4$

$r_2^2 = 16 - 4$

$r_2^2 = 12$

$r_2 = \sqrt{12}$

r_2 = **3.46cm**

thickness $= r_1 - r_2$

= 4 – 3.46

= **0.54cm**

b.

CI	F	cf
0 – 10	16	16
10 – 20	9	25
20 – 30	5	30
30 – 40	18	48
40 – 50	22	70
50 – 60	26	96
60 – 70	3	99
70 – 80	4	103
80 – 90	6	109

90 – 100	**11**	**120**

i. **Me =** $\frac{n^{th}}{2}$ $term$
= 60^{th}trem
= 47

ii. **Q_1 =** $\frac{n^{th}}{4}$ $term$
= 30^{th} term
= 30

Q_3 = $\frac{3n^{th}}{4}$ $term$
= 90^{th} term
= 58

Interquartile = $Q_3 - Q_1$
= 58 – 30
= 28

iii. **17**

11.

a. **L.H.S** $= \frac{cot^2 A}{(cosec\ A+1)^2}$

$= \frac{cosec^2 A - 1}{(cosec\ A+1)^2}$ **{$cosec^2 A - 1 = cot^2 A$}**

$= \frac{(cosec\ A-1)(cosec\ A+1)}{(cosec\ A+1)(cosec\ A+1)}$

$= \frac{cosec\ A-1}{cosec\ A+1}$

$= \left(\frac{1}{sin\ A} - 1\right) \div \left(\frac{1}{sin\ A} + 1\right)$

$= \frac{1-sin\ A}{sin\ A} \times \frac{sin\ A}{1+sin\ A}$

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

= R.H.S

L.H.S = R.H.S

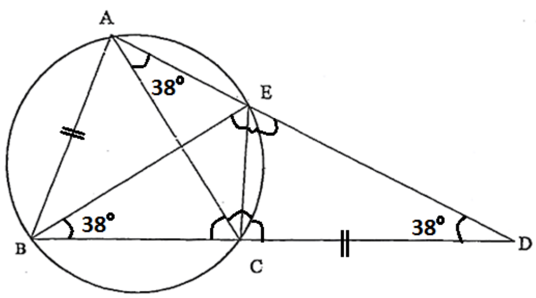
<u>Hence proved</u>

b. **Given:**

i. **AB = AC = CD**
ii. **∠ ADC = 38°**

To find:

i. **∠ ABC**
ii. **∠ BEC**



	Statement	Reason
1.	**In Δ ACD,**	
i.	**AC = CD**	**Given**
ii.	**∠ ADC = ∠ DAC = 38°**	**Angles opposite equal sides are equal**
iii.	**∠ ADC + ∠ DAC + ∠ ACD = 180°** **38° + 38° + ∠ ACD = 180°** **76° + ∠ ACD = 180°** **∠ ACD = 104°**	**Sum of all angles of a triangle is 180°**
2.	**∠ ACB + ∠ ACD = 180°** **∠ ACB + 104° = 180°**	**Linear pair**

	∠ ACB = 76°	
3.	**In Δ ABC,**	
i.	**AB = AC**	**Given**
ii.	**∠ ABC = ∠ ACB = 76°**	**Angles opposite equal sides are equal.**
	∠ ABC = 76°	
iii.	**∠ ABC + ∠ ACB + ∠ BAC = 180°**	**Sum of all angles of triangle 180°**
	76° + 76° + ∠ BAC = 180°	
	152° + ∠ BAC = 108°	
	∠ BAC = 28°	
4.	**∠ BAC = ∠ BEC = 28°**	**Angles in the same segment are equal.**

c.

i. $4y = 3x + 8$

$4y = 3(0) + 8$

$4y = 0 + 8$

$y = 2$

$\therefore A = (0, 2)$

ii. $4y = 3x + 8$

$y = \frac{3x}{4} + \frac{8}{4}$

$m = \frac{3}{4}$

$\therefore$ m of AB $= \frac{-1}{m\ of\ AC}$ **(perpendicular lines)**

∴ The equation is,

$m = \frac{y - y_1}{x - x_1}$

$\frac{-4}{3} = \frac{y - 2}{x - 0}$

$-4(x - 0) = (y - 2)\,3$

$-4x + 0 = 3y - 6$

$0 = 4x + 3y - 6$

iii. $3y + 4x - 6 = 0$

$3(0) + 4x - 6 = 0$

$4x = 6$

$x = \frac{3}{2}$

$\therefore B = (\frac{3}{2}, 0)$