KD Campus
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2007, OUTRAM LINES, 1ST FLOOR, OPPOSITE MUKHERJEE NAGAR POLICE STATION, DELHI-110009

SSC TIER II (MATHS) MOCK TEST - 32 (ANSWER KEY)

1. (C)	11. (A)	21. (A)	31. (B)	41. (B)	51. (A)	61. (A)	71. (C)	81. (B)	91. (C)
2. (B)	12. (C)	22. (D)	32. (A)	42. (A)	52. (A)	62. (C)	72. (B)	82. (C)	92. (A)
3. (B)	13. (C)	23. (A)	33. (C)	43. (A)	53. (A)	63. (D)	73. (C)	83. (A)	93. (C)
4. (A)	14. (B)	24. (C)	34. (D)	44. (C)	54. (D)	64. (A)	74. (B)	84. (B)	94. (C)
5. (B)	15. (A)	25. (B)	35. (A)	45. (B)	55. (D)	65. (B)	75. (D)	85. (C)	95. (C)
6. (D)	16. (C)	26. (B)	36. (C)	46. (C)	56. (C)	66. (D)	76. (B)	86. (D)	96. (A)
7. (B)	17. (B)	27. (C)	37. (B)	47. (A)	57. (A)	67. (B)	77. (A)	87. (B)	97. (D)
8. (D)	18. (D)	28. (B)	38. (A)	48. (B)	58. (B)	68. (A)	78. (B)	88. (B)	98. (B)
9. (C)	19. (C)	29. (D)	39. (A)	49. (A)	59. (A)	69. (B)	79. (B)	89. (B)	99. (A)
10. (D	20. (D)	30. (B)	40. (D	50. (A)	60. (B	70. (C)	80. (D)	90. (A)	100.(C)

SSC TIER II (MATHS) MOCK TEST - 32 (SOLUTION)

1. (C) A.T.Q,

$$x^2 - x - 1 = \frac{\sqrt{17}+1}{\sqrt{17}-1} - \sqrt{\frac{\sqrt{17}+1}{\sqrt{17}-1}} - 1$$

$$= \frac{\sqrt{17}+1-\sqrt{(\sqrt{17}+1)(\sqrt{17}-1)}-\sqrt{17}+1}{\sqrt{17}-1}$$

$$= \frac{2-\sqrt{17-1}}{\sqrt{17}-1}$$

$$= \frac{-2}{\sqrt{17}-1} \times \frac{\sqrt{17}+1}{\sqrt{17}+1}$$

$$= \frac{-2(\sqrt{17}+1)}{16}$$

$$= -\frac{\sqrt{17}+1}{8}$$

2. (B) Let the second expression = M
A.T.Q,
$\therefore (x^2 + 3x + 2) \times M$
$= (x^2 + 6x + 8)\ (x + 1)\ (x + 1)$
$\Rightarrow [(x + 2)(x + 1)] \times M$
$= (x + 4)\ (x + 2)\ (x + 1)\ (x + 1)$
$\Rightarrow M = (x + 4)\ (x + 1)$
$\therefore$ Required expression $= x^2 + 5x + 4$

3. (B) A.T.Q,

$$5500 \times \frac{40}{100} \times \frac{33}{100} \times \frac{6}{11} = 396$$

4. (A) A.T.Q,

$$x\cos\phi - y\sin\phi = \sqrt{x^2+y^2}$$

Squaring on both sides, we get,

$x^2\cos^2\phi + y^2\sin^2\phi - 2xy\cos\phi\sin\phi$
$= x^2 + y^2$
$\Rightarrow x^2(1-\sin^2\phi) + y^2(1-\cos^2\phi) - 2xy$
$\cos\phi\sin\phi = x^2 + y^2$
$\Rightarrow x^2\sin^2\phi + y^2\cos^2\phi + 2xy\cos\phi\sin\phi = 0$
$\Rightarrow (x\sin\phi + y\cos\phi)^2 = 0$
$\Rightarrow x\sin\phi = -y\cos\phi$

$$\Rightarrow \tan^2\phi = \frac{y^2}{x^2}$$

$$\Rightarrow \tan^2\phi + 1 = \frac{y^2+x^2}{x^2}$$

$$\Rightarrow \sec^2\phi = \frac{y^2+x^2}{x^2}$$

$$\therefore \cos^2\phi = \frac{x^2}{y^2+x^2}$$

$$\text{and, } \sin^2\phi = \frac{y^2}{y^2+x^2}$$

Now,

$$\frac{x^2}{(y^2+x^2)p^2} + \frac{y^2}{(y^2+x^2)q^2} = \frac{1}{x^2+y^2}$$

$$\therefore \frac{x^2}{p^2} + \frac{y^2}{q^2} = 1$$

5. (B) Let $x^{12} = P$
A.T.Q,

$$\frac{P^2+1}{P} = 7$$

$$\Rightarrow P + \frac{1}{P} = 7$$

$$\therefore \frac{x^{72}+1}{x^{36}} = \frac{P^6+1}{P^3}$$

$$\Rightarrow P^3 + \frac{1}{P^3}$$

Now,

$$\left(P+\frac{1}{P}\right)^3 = (7)^3$$

$$\Rightarrow P^3 + \frac{1}{P^3} + 3\left(P+\frac{1}{P}\right) = 343$$

$$\Rightarrow P^3 + \frac{1}{P^3} = 343 - 21$$

$$\therefore \frac{x^{72}+1}{x^{36}} = 322$$

6. (D) A.T.Q,

$$\frac{M-x^2}{y^2+z^2} + \frac{M-y^2}{z^2+x^2} + \frac{M-z^2}{x^2+y^2} - 3 = 0$$

$$\Rightarrow \frac{M-x^2-y^2-z^2}{y^2+z^2} + \frac{M-y^2-z^2-x^2}{z^2+x^2} + \frac{M-z^2-x^2-y^2}{x^2+y^2} = 0$$

$$\Rightarrow M-(x^2+y^2+z^2)\left[\frac{1}{y^2+z^2}+\frac{1}{z^2+x^2}+\frac{1}{x^2+y^2}\right] = 0$$

$$\Rightarrow M-(x^2+y^2+z^2) = 0$$

$$\therefore M = x^2+y^2+z^2$$

7. (B) Let the number = x

A.T.Q,

4	x
5	$y+1$
	$1+4$

$y = 5 \times 1 + 4 = 9$

$x = 9 \times 4 + 1 = 37$

Now,

5	37
4	$7-2$
	$1-3$

Hence, required remainders = 2,3

8. (D) Let the unit place digit = x

A.T.Q,

$$2[10(x-3)+x] + \frac{7}{9}[10x+x-3] = 121$$

$$\Rightarrow 22x - 60 + \frac{7}{9}[11x-3] = 121$$

$$\Rightarrow \frac{198x-540+77x-21}{9} = 121$$

$$\Rightarrow 275x - 561 = 1089$$

$$\Rightarrow 275x = 1650$$

$$\Rightarrow x = 6$$

Hence, required number = 36

and, required sum = 9

9. (C) Let x kg of 1st mixture and y kg of 2nd mixture is taken.

A.T.Q,

$$\frac{x \times \frac{7}{12}}{\frac{2x}{12}+\frac{y}{3}} = \frac{5}{3}$$

$$\Rightarrow \frac{7x}{2x+4y} = \frac{5}{3}$$

$$\Rightarrow 21x = 10x + 20y$$

$$\Rightarrow \frac{x}{y} = \frac{20}{11}$$

Hence, required ratio = 20 : 11

10. (D) A.T.Q,

L.C.M of 2, 3, 4, 5, 6, 7 and 8 = 840

Hence, required number

= (3 × 840) – 1 = 2519

11. (A) We know that

$\tan 75° = \tan(90° - 15°)$

$= \cot 15° = 2 + \sqrt{3}$

A.T.Q,

$$\frac{\cot 30° - \cot 15°}{\tan 75° - \tan 60°} = \frac{\sqrt{3}-2-\sqrt{3}}{2+\sqrt{3}-\sqrt{3}} = -1$$

12. (C) $(2.89)^{0.5} = \frac{17}{10} = 1.7$

$2 - (0.5)^2 = 2 - .25 = 1.75$

$$1 + \frac{0.5}{1-\frac{1}{2}} = 1 + 1 = 2$$

$\sqrt{3} = 1.732$

Hence, the greatest number = $1 + \frac{0.5}{1-\frac{1}{2}}$

13. (C) Let distance between A to B = x km

A.T.Q,

Total time taken by car(t)

$$= \frac{x}{p_1} + \frac{x}{p_2} + \frac{x}{p_2}$$

$$\Rightarrow t = \frac{p_2x + p_1x + p_1x}{p_1p_2}$$

$\therefore$ Average speed of the car

$$= \frac{3x}{\frac{p_2x+2p_1x}{p_1p_2}} = \frac{3p_1p_2}{p_2+2p_1}$$

14. (B) Let total number of males = x

A.T.Q,

$(x + 9)\ 11.2 = x \times 15.1 + 9 \times 6$

$\Rightarrow 11.2x + 100.8 = 15.1x + 54$

$\Rightarrow 3.9x = 46.8$

$\Rightarrow x = 12$

Hence, total number of males = 12

15. (A) A.T.Q,
Total expenditure of the month
= 31 × 64
= ₹1984
Expenditure for first 12 days
= 12 × 76
= ₹ 912
Expenditure for last 20 days
= 20 × 56
= ₹ 1120
∴ Expenditure for 12th october
= (912 + 1120) – 1984 = ₹ 48

16. (C) A.T.Q,
$mv - x + x_1 = mv_1$
$\Rightarrow x_1 - x = mv_1 - mv$
$\Rightarrow x_1 - x = m(v_1 - v)$

$$\Rightarrow \frac{1}{m} = \frac{v_1 - v}{x_1 - x}$$

$$\Rightarrow \frac{v - v_1}{x - x_1} = \frac{1}{m}$$

17. (B) Let the number of subiects be n and average markes be x
∴ Total marks = nx
A.T.Q,
$(n + 1)(x - 1) = (nx - 40) + (23 + 25)$
$\Rightarrow x - n = 9$ .....(i)
and, $(n + 2)(x + 1)$
$= (nx - 40) + (23 + 25) + 57$
$\Rightarrow nx + 2x + n + 2 = nx + 65$
$\Rightarrow 2x + n = 63$ .....(ii)
By solving equation (i) and (ii), we get
n = 15
Hence, total number of subiects = 15

18. (D) Let the age of Ajit = x years
A.T.Q,

	A	W	D	E.S	Y.S
Ages	x	$\frac{8x}{5} - 28$	$\frac{x}{5}$	$\frac{3}{8}x$	$\frac{x \times 3}{10}$
Ages 4 years ago	$x - 4$	$8\left(\frac{x}{5} - 4\right)$	$\frac{x}{5} - 4$		

Now,

$$\frac{3x}{10} + \frac{8x}{5} - 28 = x + \frac{x}{5}$$

$$\Rightarrow \frac{3x + 16x - 12x}{10} = 28$$

$\Rightarrow x = 40$
∴ Average age of the family

$$= \frac{40 + 36 + 8 + 15 + 12}{5}$$

$$= \frac{111}{5} = 22.2 \text{ years}$$

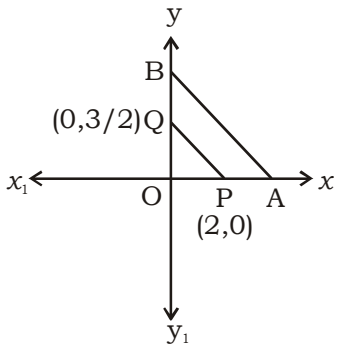
19. (C) A.T.Q,

$$\frac{0.7 \times 0.7 \times 0.7 + 0.3 \times 0.3 \times 0.3 + 0.63}{0.7 \times 0.7 + 0.3 \times 0.3 - 0.42}$$

$$= \frac{(0.7)^3 + (0.3)^3 + 3(0.3)(0.7)(0.7 + 0.3)}{(0.7)^2 + (0.3)^2 - 2(0.7)(0.3)}$$

$$= \frac{[0.7 + 0.3]^3}{[0.7 - 0.3]^2} = \frac{1}{.16} = 6.25$$

20. (D) A.T.Q,



OP = 2

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

$$PQ = \sqrt{OP^2 + OQ^2} = \sqrt{2^2 + \left(\frac{3}{2}\right)^2}$$

$$= \sqrt{4 + \frac{9}{4}}$$

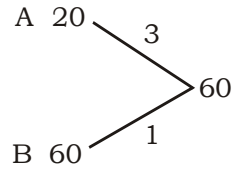
$$= \sqrt{\frac{25}{4}} = \frac{5}{2} = 2.5 \text{ cm}$$

21. (A) A.T.Q,
Ratio of times taken by A and B = 1 : 3

$$\therefore \text{ Time taken by A} = \frac{40}{2} \times 1 = 20 \text{ days}$$

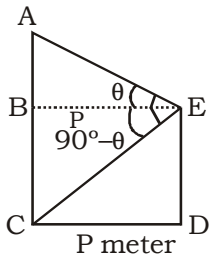
$$\text{Time taken by B} = \frac{40}{2} \times 3 = 60 \text{ days}$$

Now,



$$\therefore \text{ Required time taken} = \frac{60}{4} = 15 \text{ days.}$$

22. (D) A.T.Q,



In ΔABE,

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

$\Rightarrow AB = P\tan\theta$ ....(i)

In ΔBEC,

$$\frac{BC}{BE} = \tan(90^\circ - \theta)$$

$\Rightarrow BC = P\cot\theta$ .....(ii)

Height of the tower = AB + BC = AC

$\therefore$ AB + BC = $P\tan\theta + P\cot\theta$

$$\Rightarrow AC = P\left(\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta}\right)$$

$$\Rightarrow AC = P\left(\frac{\sin^2\theta + \cos^2\theta}{\sin\theta\cos\theta}\right)$$

$\Rightarrow AC = P\,\text{cosec}\,\theta\,\sec\theta$

23. (A) Let cost price of an article = ₹ x

A.T.Q,

Selling price of article = $\frac{125x}{100} = \frac{5x}{4}$

Profit = $\frac{5x}{4} - x = \frac{x}{4}$

New CP = $x + 70$

New SP = $\frac{5x}{4} + 40$

$\therefore$ New profit = $\frac{5x+160}{4} - (x+70)$

$= \frac{5x+160-4x-280}{4} = \frac{x-120}{4}$

Now,

$$\frac{x}{4}\left(100 - \frac{25}{4}\right) \times \frac{1}{100} = \frac{x-120}{4}$$

$$\Rightarrow \frac{375x}{4\times400} = \frac{x-120}{4}$$

$\Rightarrow 25x = 400 \times 120$

$\Rightarrow x = 1920$

Hence, cost price of article = ₹ 1920

24. (C) A.T.Q,

Kusum's age after 11 years = 37 years

= 37 – 11 = 26 years

$\therefore$ Nitisha's Present age

= 26 – 8 = 18 years

Age of Deepika – Age of Nitisha

= Age of Kusum

$\therefore$ Age of Deepika = 26 + 18 = 44 years

Now, Ratio of Nitisha's age and Deepika age = 18 : 44 = 9 : 22

$\therefore$ x = 22

25. (B) Let the present age of his son = x years

A.T.Q,

Father's present age = $x + 5x = 6x$

Now, After 6 years,

Age of father = $3\frac{1}{2}$ (age of his son)

$$6x + 6 = \frac{7}{2}(x+6)$$

$\Rightarrow 12x + 12 = 7x + 42$

$\Rightarrow 5x = 30$

$\Rightarrow x = 6$

$\therefore$ Required difference = $\frac{48}{18} = 2\frac{2}{3}$ times

26. (B) A.T.Q,

	Milk	:	Water		
Ist sol.	1	:	4	= 5]	3 × 3
2nd sol.	1	:	2	= 3]	5 × 2

New ratio

Ist sol.	9	:	36
2nd sol.	10	:	20
	19	:	56

CP = $\frac{100}{9}$ /litre

CP of 19 litre= $\frac{100\times19}{9} = \frac{1900}{9}$

SP = $\frac{120}{45} = \frac{8}{3}$ /litre

Total SP = $75 \times \frac{8}{3}$ = ₹200

Loss % = $\frac{\frac{1900}{9} - 200}{\frac{1900}{9}} \times 100 = \frac{100}{19} = 5.26\%$

27. (C) Percentage of students who failed in at least one subject = 25 + 20 – 10 = 35

$\therefore$ Percentage of students who passed in both the subject = 100 – 35 = 65

$\therefore$ Total number of students

$= \frac{2600}{65} \times 100 = 4000$

28. (B) Let total marks = 100
A.T.Q,
Marks obtained by Nitin = 72
If he had attempted 4 more question, he would have made one more mistake
∴ 3 correct answers scores him 12 marks more
∴ Each question contains
$= \frac{12}{3} = 4$ marks
Hence, total number of questions
$= \frac{100}{4} = 25$

29. (D) A.T.Q,
In first six months,
Ratio of their profit = 1 : 5 : 3
and rest of the year
Ratio of their profit = 2 : 5 : 3
∴ Total profit = $\frac{930}{3} \times 19 = ₹\ 5890$

30. (B) Let the present age of father = x years
A.T.Q,
x = sum of of present ages of 4 sons
and, $\frac{2}{3}(x+16) = \frac{1}{3}(x+64)$
$2x + 32 = x + 64$
$x = 32$
∴ Present age of Father = 32 years

31. (B) A.T.Q,

	Milk	:	Water	
Ist	2	:	3 = 5	2 × 2
2nd	3	:	7 = 10	1 × 3
3rd	4	:	1 = 5	2 × 4

Now,

Ist	8	:	12
2nd	9	:	21
3rd	32	:	8
	49	:	41

Hence, Required ratio = 49 : 41

32. (A) A.T.Q,
$1 + \tan^2\theta - 1 + \cos^2\theta - \frac{\text{cosec}^2\theta}{\cot^2\theta} + \tan^2\theta . \cos^2\theta$
$= \sec^2\theta - 1 + \cos^2\theta - \sec^2\theta + \sin^2\theta$
$= 1 - 1 = 0$

33. (C) A.T.Q,
cot 10°. sin 20° . cot 30°. sin 40°..... cot 110° sin 120°
∵ cot 90° = 0
∴ cot 10°.sin 20°.cot 30° .... cot 90°. sin 160° cot 110°sin 120° = 0

34. (D) A.T.Q,
Required percentage
$= 100 \times \frac{8120000\left(\frac{15}{100}\times\frac{3}{7}\right)+\left(\frac{25}{100}\times\frac{3}{4}\right)+\left(\frac{8}{100}\times\frac{3}{8}\right)}{8120000}$
= 28.18%

35. (A) A.T.Q,
$= 8120000\left[\left(\frac{20}{100}\times\frac{5}{7}\right)+\left(\frac{25}{100}\times\frac{4}{5}\right)\right]$
= 1160000 + 1624000 = 2784000

36. (C) A.T.Q,
Total number of females of Goa in 2007
$= \frac{8120000\times 9}{100} \times \frac{4}{7} = 417600$

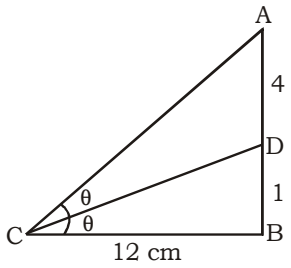
37. (B) A.T.Q,
Required ratio
$= \left(\frac{8120000\times 11}{100}\times\frac{3}{5}\right) : \left(\frac{8120000\times 12}{100}\times\frac{2}{5}\right)$
= 33 : 24

38. (A) A.T.Q,
Required ratio
$= \left(\frac{812000\times 9}{100}\times\frac{100}{112}\right) :$
$\left(\frac{812000\times 25}{100}\times\frac{100}{120}\right) = 27 : 70$

39. (A) A.T.Q,
In first 7 hours first car travels (7 + 6 + 5 + 4 + 3 + 2 + 1) km more than second car.
In 8th hour, both car travel with the same speed
∴ In next 7 hour they will meet
∴ Both cars travel for 15 hours
∴ Required distance = 15 × 15 = 225 km

40. (D) A.T.Q
Time taken by Rahul to travel from meeting point to patel nagar
= 11:32 am – 10:27 am = 1 hr 5 min
$= 1\frac{1}{12}$ hr.
Time taken by Vipin to travel from meeting point to civil lines.
$= \left(\frac{13}{12}\times\frac{4}{5}\right)$ = 52 minutes
∴ Time at which they both reached at the meeting point = 9 : 20 am + 52 min
= 10 : 12 am
∴ Required time = 10:27 am –10:12 am
= 15 min.

41. (B) A.T.Q



BD : AD = 1 : 4 ..... (given)
Using angle bisector theorem

$\frac{AD}{BD} = \frac{AC}{BC} \Rightarrow \frac{4}{1} = \frac{AC}{12}$

$\Rightarrow$ AC = 48 cm.
Now,
In ΔABC

$AB^2 = AC^2 - BC^2$

$\Rightarrow AB^2 = (48)^2 - (12)^2$

$\Rightarrow AB^2 = \sqrt{2304 - 144}$

$\Rightarrow AB = \sqrt{2160}$ cm

$\Rightarrow AB = 12\sqrt{15}$ cm

$\therefore$ Height of the pole = $12\sqrt{15}$ cm

42. (A) A.T.Q

$\pi(r - P)^2 = \frac{\pi r^2}{3}$

$\Rightarrow 3(r - P)^2 = r^2$

$\Rightarrow \sqrt{3}(r - P) = r$

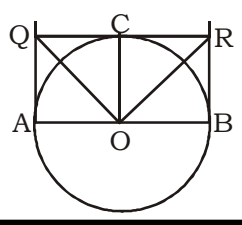
$\Rightarrow r = \frac{\sqrt{3}P}{\sqrt{3} - 1}$ unit

$\therefore$ Radius of circle = $\frac{\sqrt{3}P}{\sqrt{3} - 1}$ unit

43. (A) A.T.Q
P – 1000
Ist year – 100
2nd year – 100 + 10
3rd year – 100 + 10 + 10 + 1
4th years – 100 + 10 + 10 + 10 + 1 + 1+ 1 + 0.1
121 unit = ₹1000

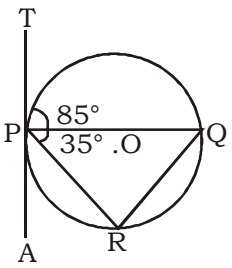
133.1 units = $\frac{1000}{121} \times 133.1$ = ₹1100

44. (C) A.T.Q



In ΔOCR and ΔRBO,
OC = OB (radii)
RC = RB
$\therefore \Delta OCR \cong \Delta RBO$
$\therefore \angle COR = \angle ROB$
and $\angle COQ = \angle QOA$
$\therefore \angle QOR = 90°$

45. (B) A.T.Q



$\angle PRQ = \angle QPT = 85°$
($\because$ Alternate segment theorem)
$\therefore \angle PQR = 180° - 85° - 35° = 60°$

46. (C) A.T.Q

$3x = \text{cosec}\,\theta$ and $\frac{3}{x} = \cot\theta$

$\Rightarrow x = \frac{\text{cosec}\,\theta}{3}$ and $\frac{1}{x} = \frac{\cot\theta}{3}$

$\Rightarrow 6\left(x^2 - \frac{1}{x^2}\right) = 6\left(\frac{\text{cosec}^2\theta}{9} - \frac{\cot^2\theta}{9}\right)$

$\Rightarrow 6\left(x^2 - \frac{1}{x^2}\right) = \frac{6}{9}$

$\Rightarrow 6\left(x^2 - \frac{1}{x^2}\right) = \frac{2}{3}$

47. (A) A.T.Q

$\frac{\sin(A - B)}{\sin(A + B)} = \frac{\cos(C - D)}{\cos(C + D)}$

Using componendo and dividendo, we get

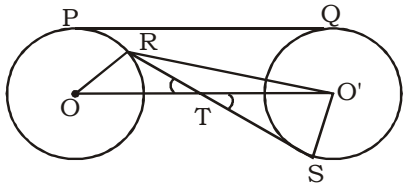
$\frac{\sin(A - B) + \sin(A + B)}{\sin(A - B) - \sin(A + B)}$

$= \frac{\cos(C - D) + \cos(C + D)}{\cos(C - D) - \cos(C + D)}$

$\Rightarrow -\frac{2\sin A\cos B}{2\sin B\cos A} = \frac{2\cos C\cos D}{2\sin C\sin D}$

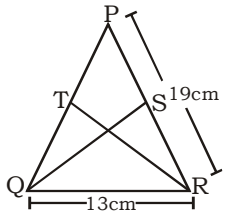
$\Rightarrow$ –tan A. cot B = cot C. cot D
$\Rightarrow$ – cot B = cot C. cot D cot A
$\Rightarrow$ cotA cotC cotD + cot B = 0

48. (B) A.T.Q



OR = O'S = 16 cm (radii)
RS = 24 cm
$\Delta ROT \cong TO'S$
$\therefore$ OT = O'T
and, RT = ST = 12 cm
In ΔROT,
$OT^2 = RO^2 + RT^2$
$\Rightarrow OT^2 = (16)^2 + (12)^2$
$\Rightarrow OT = \sqrt{256+144} = 20$ cm
and, OO' = 40 cm
$\therefore$ Length of PQ = 40cm

49. (A)



We know that,
$5QR^2 = PQ^2 + PR^2$
$\therefore 5(13^2) = PQ^2 + (19)^2$
$\Rightarrow 845 - 361 = PQ^2$
$\Rightarrow$ PQ = 22 cm

50. (A) A.T.Q

$$\sqrt{2}\sin 10^\circ \left(\frac{1}{2\cos 5^\circ} + \frac{\cos 40^\circ}{\sin 5^\circ} - 2\sin 35^\circ\right)$$

$$= \sqrt{2}\sin 10^\circ \left(\frac{\sin 5^\circ + 2\cos 5^\circ \cos 40^\circ - 2\sin 35^\circ . 2\cos 5^\circ \sin 5^\circ}{2\cos 5^\circ \sin 5^\circ}\right)$$

We know that,
$2\cos A \cos B = \cos(A+B) + \cos(A-B)$

$$= \sqrt{2}\left[\sin 5^\circ + \frac{1}{\sqrt{2}} + \cos 35^\circ - (\cos 25^\circ - \cos 45^\circ)\right]$$

$$= \sqrt{2}\left[\sin 5^\circ + \cos 35^\circ - \cos 25^\circ + \frac{2}{\sqrt{2}}\right]$$

$$= \sqrt{2}\left[\sin 5^\circ - \sin 5^\circ + \sqrt{2}\right] = 2$$

51. (A) A.T.Q,
$1 + \cos^2 A = 3\sin A \cos A$
we know that
$\sin^2 A + \cos^2 A = 1$
$\therefore \sin^2 A + \cos^2 A + \cos^2 A = 3\sin A \cos A$
$\sin^2 A + 2\cos^2 A = 3\sin A \cos A$
Dividing by $\sin^2 A$, we get
$1 + 2\cot^2 A = 3 \cot A$
$\Rightarrow 2\cot^2 A - 3\cot A + 1 = 0$
$\Rightarrow 2\cot^2 A - 2\cot A - \cot A + 1 = 0$
$\Rightarrow 2\cot A(\cot A - 1) - 1(\cot A - 1) = 0$
$\Rightarrow \cot A = 1/2$ or 1

52. (A) A.T.Q,
$a^3 - a - 5a^2 = 0$

$$\Rightarrow a - \frac{1}{a} = 5$$

and, $a^2 + \frac{1}{a^2} = 27$

$$\therefore a^2 + \frac{1}{a^2} + 5a - \frac{5}{a} = 27 + 5(5) = 52$$

53. (A) A.T.Q,

$$\frac{(x+3)^3 - (x-3)^3}{(x+3)^2 - (x-3)^2} = -6$$

let $x + 3 = A$ and $x - 3 = B$

$$\therefore \frac{A^3 - B^3}{A^2 - B^2} = -6$$

$$\Rightarrow \frac{(A-B)(A^2 + B^2 + AB)}{(A-B)(A+B)} = -6$$

$$\Rightarrow \frac{(A+B)^2 - AB}{A+B} = -6$$

Now,

$$\frac{(x+3+x-3)^2 - (x+3)(x-3)}{(x+3+x-3)} = 6$$

$$\Rightarrow \frac{4x^2 - x^2 + 9}{2x} = -6$$

$\Rightarrow x^2 + 3 = -4x$
$\Rightarrow x^2 + 4x + 3 = 0$
$\Rightarrow x^2 + 3x + x + 3 = 0$
$\Rightarrow x(x+3) + 1(x+3) = 0$
$\Rightarrow x = -3$ and $x = -1$

54. (D) A.T.Q,

$$x = 8 - \sqrt{39} = \frac{1}{2}\left(16 - 2\sqrt{39}\right)$$

$$\Rightarrow x = \frac{1}{2}\left(\sqrt{13} - \sqrt{3}\right)^2$$

Now,

$$\frac{\sqrt{x}}{\sqrt{56 - 2x - \sqrt{39}}}$$

$$= \frac{1}{\sqrt{2}} \frac{\sqrt{\left(\sqrt{13} - \sqrt{3}\right)^2}}{\sqrt{56 - 2\left(8 - \sqrt{39}\right) - \sqrt{39}}}$$

$$= \frac{1}{\sqrt{2}} \frac{\left(\sqrt{13} - \sqrt{3}\right)}{1 + \sqrt{39} - \sqrt{39}} = \frac{1}{\sqrt{2}}\left(\sqrt{13} - \sqrt{3}\right)$$

55. (D) A.T.Q

$$64p^3 - \frac{1}{512} - 6p^2 + \frac{3}{16}p = \left(4p - \frac{1}{8}\right)^3$$

Now,

$$= \left(4 \times \frac{25}{32} - \frac{1}{8}\right)^3 = \left(\frac{24}{8}\right)^3 = (3)^3 = 27$$

56. (C) A.T.Q,

$$\frac{y^3 - y^2}{3y^3 + y^2} + \frac{y^2 - y}{y^2 + 3y} + \frac{y^2}{2y + 1} \text{ ..... (i)}$$

putting the value of $y = 1$ in equation (i) we get,

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

Now, from options

$$\frac{1}{3p^2} = \frac{1}{3(1)} = \frac{1}{3}$$

Hence, required answer is C.

57. (A) A.T.Q

$$\sqrt{x} = \sqrt{3} + \sqrt{2}$$

$$\Rightarrow x = 5 + 2\sqrt{6} \text{ and, } \frac{1}{x} = 5 - 2\sqrt{6}$$

$$\text{Now, } x + \frac{1}{x} = 5 + 2\sqrt{6} + 5 - 2\sqrt{6}$$

$$\Rightarrow x + \frac{1}{x} = 10 \Rightarrow x^2 + \frac{1}{x^2} = 98$$

$$\text{and, } x^3 + \frac{1}{x^3} = 1000 - 30 = 970$$

$$\frac{x^9 + x^8 + x^4 + x^3}{x^6} = x^3 + x^2 + \frac{1}{x^2} + \frac{1}{x^3}$$

$$\therefore \left(x^2 + \frac{1}{x^2}\right) + \left(x^3 + \frac{1}{x^3}\right) = 98 + 970 = 1068$$

58. (B) A.T.Q

$$(4x - 2)^2 + (8y - 6)^2 + (4z + 3)^2 = 0$$

$$\Rightarrow x = \frac{1}{2},\ y = \frac{3}{4} \text{ and } z = \frac{-3}{4}$$

Now, we know that

$$x^3 + y^2 + z^3 - 3xyz$$

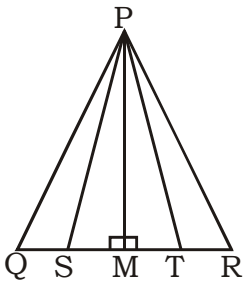
$$= \frac{1}{2}(x + y + z)[(x-y)^2 + (y - z)^2 + (z - x)^2]$$

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

$$\Rightarrow \frac{\frac{1}{2}\left[\left(-\frac{1}{4}\right)^2 + \left(\frac{3}{2}\right)^2 + \left(-\frac{5}{4}\right)^2\right]}{2\left[\frac{1}{4} + \frac{9}{16} + \frac{9}{16}\right]}$$

$$= \frac{62}{16} \times \frac{1}{2} \times \frac{1}{2} \times \frac{16}{22} = \frac{31}{44}$$

59. (A) A.T.Q



In ΔPMQ,

$PM \perp QR$

$PM^2 = PQ^2 - MQ^2$

$\Rightarrow PM^2 = (12)^2 - (6)^2$

$\Rightarrow PM^2 = 144 - 36 = 108$

$\Rightarrow PM = 6\sqrt{3}$ cm

In ΔPSM,

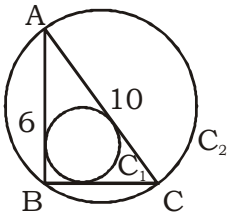
$PS^2 = SM^2 + PM^2$

$\Rightarrow PS^2 = \left(6\sqrt{3}\right)^2 + (2)^2$

$\Rightarrow PS^2 = 108 + 4 = 112$

$\Rightarrow PS = 4\sqrt{7}$ cm

60. (B) A.T.Q



We know that

In radius of right angle triangle

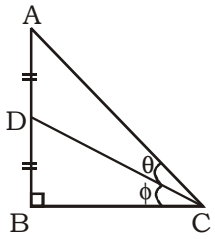
$$= \frac{AB + BC - AC}{2} = \frac{6 + 8 - 10}{2} = 2\text{cm}$$

and, circum-radius of right angle triangle

$$= \frac{\text{Hypotenuse}}{2} = \frac{10}{2} = 5 \text{ cm}$$

$$\therefore \text{ Required ratio} = \frac{\pi(2)^2}{\pi(5)^2} = \frac{4}{25}$$

61. (A) In ΔBDC



$$\tan\phi = \frac{BD}{BC} = \frac{AB}{2BC}$$

$\because$ (D is the mid point of AB)

$$\Rightarrow \tan\phi = \frac{1}{2m} \text{ (BC = m AB)}$$

$$\tan(\theta+\phi) = \frac{\tan\theta+\tan\phi}{1-\tan\theta\tan\phi}$$

$$\frac{AB}{BC} = \frac{\tan\theta+\frac{1}{2m}}{1-\frac{\tan\theta}{2m}}$$

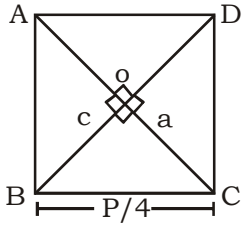
$$\Rightarrow 1-\frac{\tan\theta}{2m} = m\left[\tan\theta+\frac{1}{2m}\right]$$

$$\Rightarrow m\tan\theta+\frac{\tan\theta}{2m} = 1-\frac{1}{2}$$

$$\Rightarrow \tan\theta = \frac{2m}{2\left(2m^2+1\right)}$$

$$\Rightarrow \tan\theta = \frac{m}{2m^2+1}$$

62. (C)



Side of the rombus

$$= \frac{\text{Perimeter}}{4} = \frac{p}{4}\text{unit}$$

$\therefore$ Let AC = $2a$

OA = OC = a

BD = $2c$

$\therefore$ OB = OD = c

In ΔOBC,

$$a^2 + c^2 = \frac{p^2}{16}$$

$16a^2 + 16c^2 = p^2$ ..... (i)

and, $2a + 2c = y/2$

$\Rightarrow 4a + 4c = y$ ..... (ii)

On squaring, we get

$\Rightarrow 16a^2 + 16c^2 + 32ac = y^2$ .....(iii)

Solving equation (i) and (iii)

$p^2 = y^2 - 32ac$

$\Rightarrow y^2 - p^2 = 32ac$

$$\Rightarrow \frac{1}{16}(y^2-p^2) = 2ac$$

$$\text{Area of rombus} = \frac{1}{2}\times 2a\times 2c$$

$$\therefore \text{Required area} = \frac{1}{16}(y^2-p^2)$$

63. (D) A.T.Q,

$$\text{Area of ground} = \frac{700}{35}\times 100 = 2000\ m^2$$

Now,

2000 = 40 × length

$\therefore$ Length = 50 m

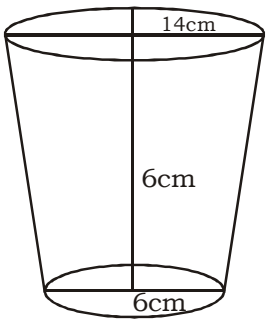
New length = 50 + 55 = 105 m

New area = 105 × 40 = 4200 m^2

$\therefore$ Required expenditure

$$= \frac{4200\times 35}{100} = ₹1470$$

64. (A)



Slant height of bucket

$$= \sqrt{(R-r)^2+h^2} \Rightarrow l = \sqrt{8^2+6^2}$$

$\Rightarrow l$ = 10 cm

Total surface area

$= \pi[(R + r)l + R^2 + r^2]$

$= \pi[(14 + 6)10 + (14)^2 + (6)^2]$

$$= \frac{22}{7}[200 + 196 + 36]$$

= 1357.71 cm^2

65. (B) A.T.Q,

$$3x + \frac{3}{x} = 1 \quad \Rightarrow x + \frac{1}{x} = \frac{1}{3}$$

$$\left(x + \frac{1}{x}\right)^3 = \frac{1}{27}$$

$$\Rightarrow x^3 + \frac{1}{x^3} = \frac{1}{27} - 1 = \frac{-26}{27}$$

66. (D) A.T.Q,

$$\text{Volume of conical vessel} = \frac{1}{3}\pi r^2 h$$

$$= \frac{1}{3} \times \frac{22}{7} \times 15 \times 14 \times 14 = 3080 \text{ cm}^3$$

$$\text{Volume of 7 spheres} = \frac{3080}{4} = 770 \text{ cm}^3$$

$$\therefore \text{ Volume of each sphere} = \frac{770}{7} = 110 \text{ cm}^3$$

67. (B) Let the number of girls in class A = x
and, the number of boys in class A = y
Number of boys in B = x
and, total number of student in class B

$$= (x + y) \times \frac{150}{100} = \frac{3}{2}(x + y)$$

Total number of boys in both class
$= x + y$
Total number of student's in both class

$$= (x + y) + \frac{3}{2}(x + y) = \frac{5}{2}(x + y)$$

$$\text{Required percentage} = \frac{2(x+y)}{5(x+y)} \times 100 = 40\%$$

68. (A) A.T.Q,

$$\text{S.P. of first article} = \frac{2000(100 + x)}{100}$$

$= 2000 + 20x$
Profit on first article
$= 2000 + 20x - 2000 = 20x$
S.P of second article

$$= \frac{4000(100 + 2x)}{100} \times \frac{(100 - x)}{100}$$

$$= \frac{2(100 + 2x)(100 - x)}{5}$$

$$= \frac{20000 + 200x - 4x^2}{5}$$

$\therefore$ Profit on second article

$$= \frac{20000 + 200x - 4x^2 - 20000}{5}$$

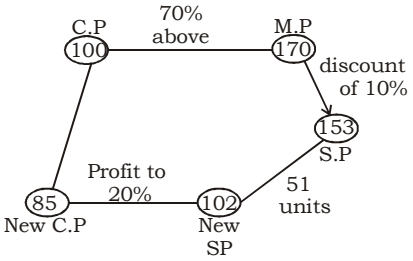
$$= \frac{200x - 4x^2}{5}$$

Now,

$$20x = \frac{200x - 4x^2}{5}$$

$\Rightarrow 100x = 200x - 4x^2$
$\Rightarrow 4x^2 = 100x \Rightarrow x = 25\%$
Hence, required value of $x = 25\%$

69. (B) A.T.Q



51 units = ₹459

$$100 \text{ units} = \frac{459}{51} \times 100 = ₹900$$

70. (C) A.T.Q,

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

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

$$\Rightarrow \sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$$

71. (C) Let SP = ₹x
A.T.Q

$$\left(\frac{\text{CP} - x}{\text{CP}}\right) \times 100 = \left(\frac{2x - \text{CP}}{\text{CP}}\right) \times 100$$

$\Rightarrow \text{CP} - x = 2x - \text{CP}$

$$\Rightarrow x = \frac{2}{3}\text{CP} \Rightarrow \frac{\text{SP}}{\text{CP}} = \frac{2}{3}$$

$$\therefore \text{ loss \%} = \frac{1}{3} \times 100 = 33\frac{1}{3}\%$$

72. (B)

	CP	SP
first article	4	$5_{\times 4}$
second article	3	$4_{\times 5}$

same

Now,

	CP	SP
first article	16	20
second article	15	20

Difference of the profits = [5 – 4] = 1 units
1 unit = 75
$\therefore$ 20 units = 75 × 20
$\therefore$ Selling price of each article = ₹1500

73. (C) We know that,

$$\frac{M_1 D_1 H_1}{D_1} = \frac{M_2 D_2 H_2}{D_2}$$

$$\therefore \quad \frac{60 \times 80 \times 12}{1} = \frac{50 \times 60 \times 10}{D_2}$$

$\therefore$ Required fraction = $\frac{25}{48}$

74. (B) Let A, B and C together can complete a work in x hours.

A.T.Q

Time taken by A = $(x + 1)$ hours

Time taken by B = $(x + 6)$ hours

Time taken by C = $2x$ hours

$$\therefore \quad \frac{1}{x} = \frac{1}{x+6} + \frac{1}{x+1} + \frac{1}{2x}$$

$$\Rightarrow \frac{1}{2x} = \frac{2x+7}{x^2+7x+6}$$

$$\Rightarrow 3x^2 + 7x - 6 = 0$$

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

Time taken by A = $\frac{2}{3} + 1 = \frac{5}{3}$ hours

Time taken by B = $\frac{2}{3} + 6 = \frac{20}{3}$ hours

$\therefore$ Required time = $\frac{1}{\frac{3}{5} + \frac{3}{20}} = \frac{4}{3}$ days

75. (D) A.T.Q

Time taken by Anil to complete the work

= $\frac{3}{2} \times 4 = 6$ hrs.

Time taken by Sandeep to complete the work = $6 \times \frac{3}{2} = 9$ hrs.

A – 6 \ 3
S – 9 / 2 \ 18

$\therefore$ Efficiency of Kamesh = $3 \times \frac{3}{2} = 4.5$

$\therefore$ They will complete the work in

= $\frac{18}{(3+2+4.5)} = \frac{18}{9.5} = 1\frac{17}{19}$ days

76. (B) A.T.Q

Ist pipe → 12 \ 2
2nd pipe → -8 / -3 \ 24

1 unit will be empited in = 1 hrs.

Required time taken = $\frac{24 \times \frac{1}{8}}{1}$ = 3hrs.

77. (A) A.T.Q

A	:	B + C
1		3 = 4] 5
B	:	A + C
1	:	4 = 5] 4

Now,

A	:	B + C
5	:	15 = 20
B	:	A + C
4	:	16 = 20

$\therefore$ Ratio of their shares = 5 : 4 : 11

$\therefore$ Required difference

= $19200\left(\frac{5-4}{20}\right) = ₹\ 960$

78. (B) Let total profit = 36

Profit of A = $\frac{1}{9} \times 36 = 4$ units

Profit of B = $\frac{1}{4} \times 36 = 9$ units

	A	: B	: C
Capital →	x	y	1840
Time →	3	6	8
Profit →	4	9	23

Now, $\frac{1840 \times 8}{6y} = \frac{23}{9}$

$$y = \frac{1840 \times 8 \times 9}{23 \times 6} \Rightarrow y = 960$$

and, $\frac{6y}{3x} = \frac{9}{4}$

$$\Rightarrow x = \frac{6 \times 960 \times 4}{3 \times 9}$$

$\Rightarrow$ x = **₹853.33**

Capital of A = ₹853.33

Capital of B = ₹960

79. (B) A.T.Q

Time taken by A to complete the race

= $\frac{360}{24} \times 5$ = 75 sec

and, time taken by B to run 300 m

= 75 + 12.5 = 87.5 sec

$\therefore$ Speed of B = $\frac{300}{87.5} = \frac{24}{7} = 3\frac{3}{7}$ m/sec

80. (D) Let total distance = D km
Speed of boat = x km/hr
Speed of current = y km/hr
A.T.Q

$$3\left(\frac{D}{x+y}\right) = 2\left(\frac{D}{x-y}\right)$$

$\Rightarrow x = 5y$

$$\Rightarrow \frac{x}{y} = \frac{5}{1}$$

$\therefore$ Required ratio = 5 : 1

81. (B) Let the principal = x
Let the time = t

$$\frac{x \times 20 \times t}{3 \times 100} + x = 9000$$

$\Rightarrow xt + 15x = 135000$ ..... (i)

and, $\frac{x \times 5 \times t}{100} + x = 8000$

$\Rightarrow xt + 20x = 160000$ ..... (ii)
Solving equation (i) and (ii), wet get
$5x = 25000$
$\Rightarrow x = 5000$
After putting the value of x, we get
$t = 12$
Hence, required time = 12 years

82. (C) A.T.Q,

$$\text{Effictive rate of interest} = \frac{5 \times 80}{100} = 4\%$$

$$\text{Required amount} = 10000\left(1 + \frac{4}{100}\right)^2$$

$$= 10000 \times \frac{26}{25} \times \frac{26}{25} = 16 \times 26 \times 26$$

= ₹10816

83. (A) A.T.Q
Relative speed of trains
= 15 + 21 = 36 km/hr

$$\text{Time after they meet} = \frac{90}{36} = \frac{5}{2}\text{hr.}$$

Distance travelled in 150 minutes = 90 km
$\therefore$ Distance travelled in 1 minutes

$$\frac{90000}{150} \times 1 = 600 \text{ meter}$$

$\therefore$ Required distance = 600 meter

84. (B) Let speed of Arjun = x km/hr
Speed of Karan = $(x-4)$ km/hr
A.T.Q

$$\frac{63}{x-4} = \frac{84+21}{x}$$

$\Rightarrow 63x = 105x - 420$
$\Rightarrow 42x = 420$
$\Rightarrow x = 10$
$\therefore$ Speed of karan = 10 – 4 = 6 km/hr

85. (C) Let the number of persons = x
A.T.Q,
$75 \times x = (x+4)65$
$\Rightarrow 75x = 65x + 260$
$\Rightarrow x = 26$
$\therefore$ Number of persons initially = 26

86. (D) Let the cost price = x
A.T.Q

$$\text{S.P} = \frac{x \times 125}{100} = \frac{5x}{4}$$

$$\text{Profit} = \frac{5x}{4} - x = \frac{x}{4}$$

Now,
CP = $x + 60$

$$\text{and, SP} = \frac{5x}{4} + 40$$

$$\therefore \text{Profit} = \frac{5x + 160 - 4x - 240}{4}$$

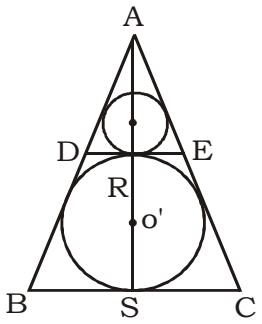
$$= \frac{x-80}{4}$$

$$\text{Now, } \frac{x}{4} \times \left(100 - \frac{20}{3}\right) \times \frac{1}{100} = \frac{x-80}{4}$$

$$\Rightarrow \frac{70x}{300} = \frac{x-80}{4}$$

$\Rightarrow 2x = 2400$
$\Rightarrow x = 1200$
$\therefore$ Cost price of article = ₹1200

87. (B) A.T.Q



Let the side of equilateral triangle = a
In radius of the equilateral triangle

$$= \frac{a}{2\sqrt{3}}$$

Now,

DE || BC and AR ⊥ DE

AS = $\frac{\sqrt{3}}{2}a$, RS = $\frac{a}{\sqrt{3}}$ and AR = $\frac{\sqrt{3}}{2}a - \frac{a}{\sqrt{3}}$

$\Rightarrow$ AR = $\frac{3a-2a}{2\sqrt{3}} = \frac{a}{2\sqrt{3}}$

$\therefore$ AR = $\frac{1}{3}$AS

Radius of smaller circle

= $\frac{1}{3} \times \frac{a}{2\sqrt{3}} = \frac{a}{6\sqrt{3}}$

Required ratio = $\pi\left(\frac{a}{6\sqrt{3}}\right)^2 : \pi\left(\frac{a}{2\sqrt{3}}\right)^2$

= $\frac{\pi a^2}{108} : \frac{\pi a^2}{12}$ = 1 : 9

88. (B) A.T.Q

7A = 5B

$\Rightarrow \frac{A}{B} = \frac{5}{7}$

and, 6 B = 11C

$\Rightarrow \frac{B}{C} = \frac{11}{6}$

Now, A : B : C
5 : 7 : 7
11 : 11 : 6
55 : 77 : 42

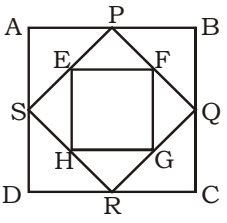
$\therefore$ Minimum number of coins = 55 + 77 + 42
= 174

89. (B) $\angle$ BOC = 90° + $\frac{1}{2}\angle$ BAC

= 90° + 20° = 110°

90. (A) New arithmetic mean = (34 + 8) × 3.5
= 147

91. (C)



AP = PB = 3cm

$\therefore$ SP = $\sqrt{3^2+3^2}$ = $\sqrt{18}$ = $3\sqrt{2}$ cm

and, SE = PE = $\frac{3}{\sqrt{2}}$ cm

$\therefore$ EH = $\sqrt{\left(\frac{3}{\sqrt{2}}\right)^2 + \left(\frac{3}{\sqrt{2}}\right)^2}$

= $\sqrt{\frac{9}{2}+\frac{9}{2}} = \sqrt{\frac{18}{2}}$ = 3cm

Now, Sum of area of squres

= $(6)^2 + \left(3\sqrt{2}\right)^2 + (3)^2$ .....

= 36 + 18 + 9 .....

series is G.P

$\therefore$ a (first term) = 36

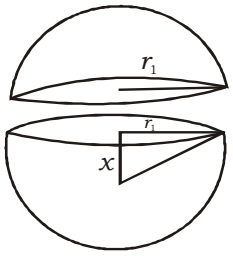
and, $r = \frac{1}{2}$

$\therefore$ sum of an infinite G.P. = $\frac{a}{1-r}$

$\therefore$ Required sum = $\frac{36}{1-\frac{1}{2}} = \frac{36\times 2}{1}$

= 72 cm^2

92. (A)



Surface area of sphere ball = $4\pi r^2$

= $4\pi \times 12 \times 12 = 576\pi$ cm^2

Total surface area of two pieces

= $\frac{5}{24}$ more than the surface area of ball

$\therefore$ extra area = $\frac{5}{24} \times 576\pi = 120\pi$ cm^2

$\therefore$ $\pi r_1^2 + \pi r^2_1 = 120\pi$ cm^2

r_1^2 = 60 cm

Now, $x^2 = r^2 - r_1^2$

$\Rightarrow x^2 = 144 - 60$

$\Rightarrow x^2 = 84$

$\Rightarrow x = 2\sqrt{21}$ cm

$\therefore$ Required distance = $2\sqrt{21}$ cm

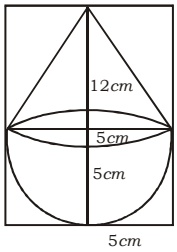
93. (C) Area of floor = 12 × 9 = 108 m^2

$\therefore$ Number of tiles of cover the floor

= $\frac{108}{0.6\times 0.6}$ = 300 tiles

$\therefore$ Required expenditure = 300 × 7 = ₹2100

94. (C) A.T.Q

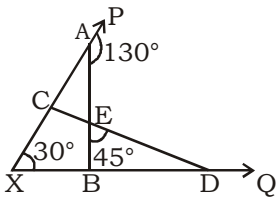


Volume of cylinder
$= \pi \times 5 \times 5 \times 17 = 425\pi \text{ cm}^3$
Required volume of water

$$= 425\pi - \left(\frac{1}{3}\pi \times 5 \times 5 \times 12 + \frac{2\pi}{3} \times 5 \times 5 \times 5\right)$$

$$= 425\pi - \frac{550\pi}{3} = \frac{725\pi}{3} = 759.5 \text{ cm}^3$$

95. (C) A.T.Q



$\angle ABX = 130 - 30° = 100°$
$\therefore \quad \angle ABD = 180° - 100° = 80°$
$\therefore \angle CDQ = 80° + 45°) = 125°$

96. (A) A.T.Q
Total number of students of class 10th and class 12th in school C

$$= \left(\frac{12800 \times 25}{100} + \frac{16800 \times 20}{100}\right) = 6560$$

97. (D) A.T.Q,

$$\text{Required ratio} = \frac{16800 \times 10}{100} : \frac{12800 \times 16}{100}$$

$= 105 : 128$

98. (B) A.T.Q,
Required number of students

$$= \frac{12800 \times 27}{100} = 3456$$

99. (A) A.T.Q,
Required number of students

$$= \frac{16800 \times 29}{100} = 4872$$

100. (C) A.T.Q,
Required percentage

$$= \left[\frac{\frac{12800 \times 36}{100}}{\frac{16800 \times 39}{100}} \times 100\right] = \frac{4608}{6552} \times 100 = 70.33\%$$

Note:- If you face any problem regarding result or marks scored, please contact 9313111777

Note:- If your opinion differs regarding any answer, please message the mock test and question number to 8860330003

Note:- Whatsapp with Mock Test No. and Question No. at 7053606571 for any of the doubts. Join the group and you may also share your suggestions and experience of Sunday Mock Test.