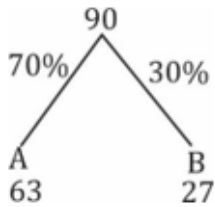


Quantitative Aptitude Sunday Mega Quiz for SSC CHSL – (Solutions)

S1. Ans.(b)

Sol.



Now Total Sum =  $53 \times 90$   
 $= 4770$

Let total sum of village B = x

$$\therefore \text{A.T.O } \frac{x}{27} = \frac{4770-x}{63} \times \frac{120}{100}$$

$$35x = 18(4770-x)$$

$$X = 1620$$

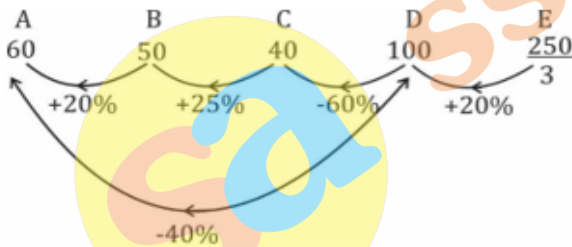
$\therefore$  Average score of students

$$\text{from village B} = \frac{1620}{27}$$

$$= 60$$

S2. Ans.(c)

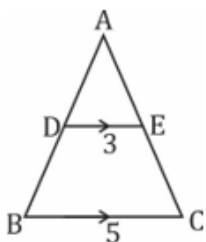
Sol.



$\therefore$  A is 40% less than D

S3. Ans.(a)

Sol.



$$\frac{\text{ar } (\triangle ADE)}{\text{ar } (\text{quad } DECB)} = \frac{3^2}{5^2 - 3^2} = \frac{9}{16}$$

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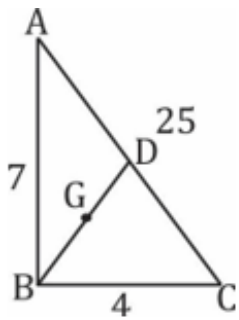
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S4. Ans.(b)

Sol.



7, 24, 25 are triplets

$$\therefore BD = \frac{25}{2}$$

$$\therefore BG = \frac{2}{3} \times \frac{25}{2} = \frac{25}{3}$$

$$= 8\frac{1}{3}$$

S5. Ans.(b)

Sol.

$$30 \times 10 \times 8 = 40 \times 6 \times H$$
$$H = 10 \text{ hours.}$$

S6. Ans.(a)

Sol.

$$\frac{1}{3} (\pi r^2) \times 18 = 924$$

$$\pi r^2 = \frac{924}{6} = 154$$

S7. Ans.(d)

Sol.

$$\text{Actual production} = 70 + 50 + 100 + 80 + 120 = 420$$

$$\text{Target production for Feb, April and May} = 30 + 90 + 100 = 220$$

$$\therefore \% = \frac{200}{420} \times 100 = 47.6\%$$

S8. Ans.(d)

Sol.

$$342x18y6$$

For largest value of y for which 8y6 is divisible by 8

$$y = 9$$

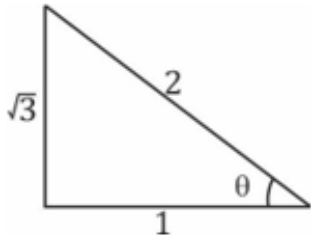
342x1896 for divisibility by 9.

$$x = 3$$

$$\therefore \text{value of } \sqrt{9x + y} = \sqrt{27 + 9} = 6$$

S9. Ans.(d)

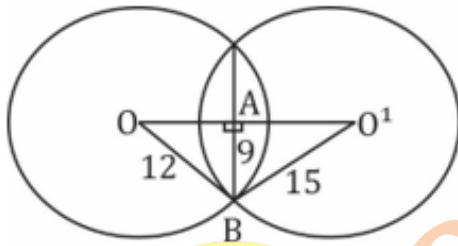
Sol.



$$\begin{aligned} & \frac{2 - \sin^2 \theta}{1 - \cos^2 \theta} + (\operatorname{cosec}^2 \theta + \sec \theta) \\ &= \frac{2 - \sin^2 \theta}{\sin^2 \theta} + (\operatorname{cosec}^2 \theta + \sec \theta) \\ &= 2 \operatorname{cosec}^2 \theta - 1 + \operatorname{cosec}^2 \theta + \sec \theta \\ &= 3 \operatorname{cosec}^2 \theta + \sec \theta - 1 \\ &= 3 \times \left(\frac{2}{\sqrt{3}}\right)^2 + 2 - 1 \\ &= 4 + 2 - 1 = 5 \end{aligned}$$

S10. Ans.(d)

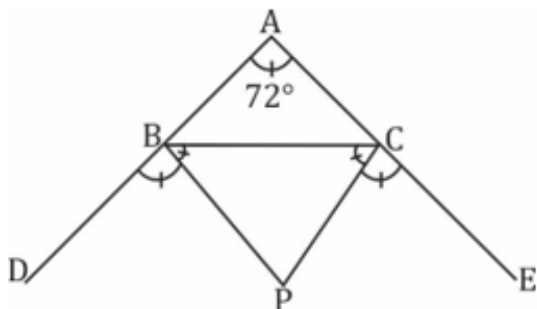
Sol.



$$\begin{aligned} OO' &= OA + AO' \\ &= \sqrt{12^2 - 81} + \sqrt{15^2 - 81} \\ &= \sqrt{63} + 12 \\ &= 12 + 3\sqrt{7} \end{aligned}$$

S11. Ans.(d)

Sol.



$$\therefore \angle P = 90 - \frac{\angle A}{2} = 90 - 36 = 54^\circ$$

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S12. Ans.(d)

Sol.

$$\sqrt{x^3 + y^3 + z^3 + xyz}$$

$$\text{Now, } x^3 + y^3 + z^3 - 3xyz = (x + y + z)\{(x + y + z)^2 - 3(xy + yz + xz)\}$$

$$= 19 \{361 - 3 \times 114\}$$

$$= 19 \{19\}$$

$$x^3 + y^3 + z^3 = 361 + 3 \times 216$$

$$= 1009$$

$$\therefore \sqrt{x^3 + y^3 + z^3 + xyz} = \sqrt{1009 + 216} = \sqrt{1225} = 35$$

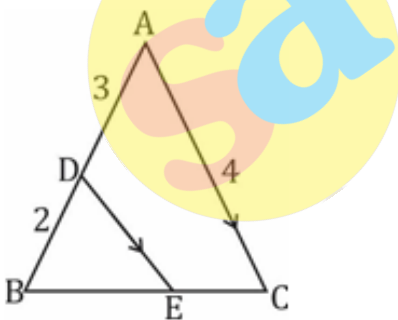
S13. Ans.(d)

Sol.

$$\frac{\tan 13^\circ \tan 37^\circ \tan 45^\circ \tan 53^\circ \tan 77^\circ}{2 \operatorname{cosec}^2 60^\circ (\cos^2 60^\circ - 3 \cos 60^\circ + 2)}$$
$$= \frac{\tan 45^\circ \tan 13^\circ \cot 13^\circ \tan 37^\circ \cot 37^\circ}{2 \operatorname{cosec}^2 60^\circ (\cos^2 60^\circ - 3 \cos 60^\circ + 2)}$$
$$= \frac{1}{2 \times \frac{4}{3} \left(\frac{1}{4} - \frac{3}{2} + 2\right)}$$
$$= \frac{1}{2 \times \frac{4}{3} \times \frac{3}{4}} = \frac{1}{2}$$

S14. Ans.(a)

Sol.



$$\therefore \frac{\text{ar}(\triangle BDE)}{\text{ar}(\triangle ABC)} = \frac{BD^2}{BA^2} = \frac{4}{25}$$
$$\frac{\text{ar}(BDE)}{\text{ar}(ABC) - \text{ar}(\triangle BDE)} = \frac{4}{25 - 4}$$
$$\frac{\text{ar}(\triangle BDE)}{\text{ar of trap.}(ACED)} = \frac{4}{21}$$

S15. Ans.(a)

Sol.

$$\frac{35 + 33 + 55}{3} = \frac{123}{3} = 41$$

$$x\% = \frac{50 - 41}{50} \times 100 = 18\%$$

S16. Ans.(a)

Sol.

$$\cos^2\theta - \sin^2\theta - 3\cos\theta + 2 = 0$$

$$2\cos^2\theta - 3\cos\theta + 1 = 0$$

$$2\cos^2\theta - 2\cos\theta - \cos\theta + 1 = 0$$

$$2\cos\theta(\cos\theta - 1) - 1(\cos\theta - 1) = 0$$

$$(2\cos\theta - 1)(\cos\theta - 1) = 0$$

$$\cos\theta = \frac{1}{2}$$

$$\theta = 60^\circ \quad [0^\circ < \theta < 90^\circ]$$

$$\therefore 4\operatorname{cosec}\theta + \cot\theta$$

$$4 \times \frac{2}{\sqrt{3}} + \frac{1}{\sqrt{3}} = \frac{9}{\sqrt{3}} = 3\sqrt{3}$$

S17. Ans.(b)

Sol.

$$a^2 + 4b^2 + 49c^2 + 18 = 2(2b + 28c - a)$$

$$(a)^2 + (2b)^2 + (7c)^2 + 1 + 1 + (4)^2 = 4b + 56c - 2a$$

$$(a+1)^2 + (2b-1)^2 + (7c-4)^2 = 0$$

$$A = -1, b = \frac{1}{2}, c = \frac{4}{7}$$

$$\therefore (3a + 2b + 7c) \\ = (-3 + 1 + 4) = 2$$

S18. Ans.(c)

Sol.

$$\text{Relative speed} = (54 - 42) \times \frac{5}{18} = \frac{12 \times 5}{18} = \frac{10}{3} \text{ m/s}$$

$$\text{Let the length of train} = l$$

$$\therefore \frac{\frac{2l}{\frac{10}{3}}}{\frac{8}{3}} = 63$$

$$l = 105 \text{ m}$$

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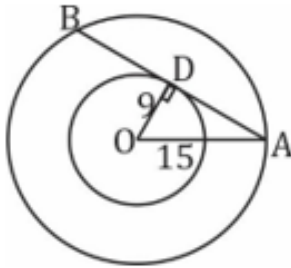
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S19. Ans.(a)

Sol.



$$\therefore AD = \sqrt{15^2 - 9^2} = 12$$

$$\therefore AB = 12 \times 2 = 24 \text{ CM}$$

S20. Ans.(a)

Sol.

$$2940 = \frac{P \times 10 \times 7}{100 \times 2}$$

$$P = 8400$$

For 2.5 years

8400	840		
	840	84	
	840	168	8.4

$$\therefore \text{CI for 2.5 years} = (840 + 840 + 84) + (840 + 168 + 8.4) / 2 = 2272$$

S21. Ans.(b)

Sol.

Target production of AC for five months

$$= 60 + 30 + 80 + 90 + 100 = 360$$

$$\therefore \text{Average} = \frac{360}{5} = 72$$

$$\text{Required value} = \frac{8}{72} \times 100$$

$$= \frac{100}{9} \% = 11 \frac{1}{9} \%$$

S22. Ans.(c)

Sol.

$$3 \div \{5 - 5 \div (6 - 7) \times 8 + 9\}$$

$$\frac{4 + 4 \times 4 \div 4 \text{ of } 4}{3 \div \{5 + 40 + 9\}} = \frac{3 \div 54}{5}$$

$$= \frac{4 + 1}{3 \times 54} = \frac{1}{90}$$

S23. Ans.(a)

Sol.

$$a=5, b=-1, c=1$$

$$\therefore 4abc = 4 \times 5 \times (-1) \times 1 = -20$$

S24. Ans.(c)

Sol.

$$(\sqrt{3}x)^3 - (\sqrt{2}y)^3 = (\sqrt{3}x - \sqrt{2}y)(3x^2 - \sqrt{6}xy + 2y^2)$$

$$\therefore A = 3, B = \sqrt{6}, C = 2$$

$$A^2 - B^2 + C^2 = 9 - 6 + 4 = 13 - 6 = 7$$

S25. Ans.(b)

Sol.

$$\text{March} = \frac{100-80}{80} \times 100 = \frac{20}{80} \times 100 = 25\%$$

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