

Quant Mega Quiz for RRB NTPC – (Solutions)

S1. Ans.(a)

Sol. Distance = $\frac{5 \times 0.35}{(7-5)}$ km
 = 0.875 km = 875 m

S2. Ans.(a)

Sol. ATQ,

$$\frac{(A \times 25)}{\frac{3}{4}} = \frac{(A + B) \times 5}{\frac{1}{4}}$$

$$\frac{A}{B} = \frac{3}{2}$$

Total work = $\frac{3 \times 25}{(\frac{3}{4})}$ or $\frac{(3 + 2) \times 5}{\frac{1}{4}}$

= 100 units

B, alone = $\frac{100}{2} = 50$ days.

S3. Ans.(a)

Sol. Let the nos be

$$\underbrace{(n - 28), (n - 26), \dots, n, \dots, (n + 26), (n + 28)}_{14 \text{ nos} \quad \quad \quad 14 \text{ nos}}$$

When the total nos are odd then the middle no is always their mean.

∴ n = 60

Highest no. = n + 28 = 88

S4. Ans.(b)

Sol. $[4(2x - 3y) + 5(x + 4y)] - [5(2x - y)]$
 = $[13x + 8y] - [10x - 5y]$
 = $3x + 13y$

S5. Ans.(d)

Sol. From, $3(2 - 3x) < 2 - 3x \Rightarrow x > \frac{2}{3}$

From, $2 - 3x \geq 4x - 6 \Rightarrow x \leq \frac{8}{7}$

From given options, only (d) X= 1 satisfies both equations.

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S6. Ans.(d)**Sol.** $X = \sec^2 A + \operatorname{cosec}^2 A$

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

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

$$= \sec^2 A \cdot \operatorname{cosec}^2 A$$

S7. Ans.(a)**Sol.** For half yearly, Rate = $15/2 = 7.5\%$

Annual effective Rate

$$= 7.5 + 7.5 + \frac{7.5 \times 7.5}{100}$$

$$= 15.56\%$$

S8. Ans.(c)**Sol.**

$$(4x - 3) - (2x + 1) = 4$$

$$\Rightarrow 2x - 4 = 4 \Rightarrow x = 4$$

S9. Ans.(b)**Sol.** Effective discount

$$= D_1 + D_2 - \frac{D_1 \times D_2}{100}$$

$$= 25 + 10 - \frac{25 \times 10}{100}$$

$$= 32.5\%$$

S10. Ans.(a)**Sol.**

Eqn.	Roots
$3x^2 - 6x + 2 = 0$	$\left(\frac{3 + 2\sqrt{3}}{3}, \frac{3 - 2\sqrt{3}}{3}\right)$
$3x^2 - 6x + 3 = 0$	(1, 1)
$x^2 - 8x + 16 = 0$	(4, 4)
$4x^2 - 8x + 4 = 0$	(1, 1)

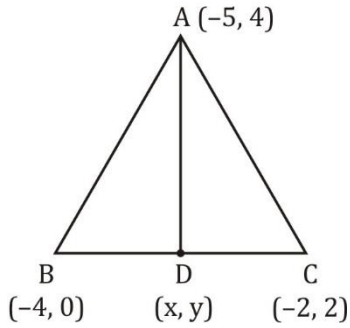
Only Eqⁿ $(3x^2 - 6x + 2) = 0$ has real and distinct roots.**S11. Ans.(d)****Sol.** By sine Rule,

$$\frac{9}{\sin 30^\circ} = \frac{x}{\sin 60^\circ}$$

$$x = 9\sqrt{3} \text{ cm}$$

S12. Ans.(c)

Sol.



∴ D is mid point

$$(x, y) = \left(\frac{-4-2}{2}, \frac{0+2}{2} \right)$$

$$= (-3, 1)$$

Slope of line AD (m)

$$= \left[\frac{1-4}{-3+5} \right]$$

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

Eqn. of line AD

$$(y - 4) = \frac{-3}{2}(x + 5)$$

$$3x + 2y = -7$$

S13. Ans.(a)

Sol. ATQ,

$$x \times \frac{137}{100} \times \frac{75}{100} = 2620.125$$

$$x = \text{Rs. } 2550$$

S14. Ans.(d)

Sol. Let the age of Rasika and Shami be $7x$ & $5x$ respectively.

ATQ,

$$\frac{7x + 17}{5x + 17} = \frac{12}{11}$$

$$\Rightarrow x = 1$$

∴ Rasika's present age = 7 year.

S15. Ans.(b)

Sol. General Formula,

$$\tan A + \tan B = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

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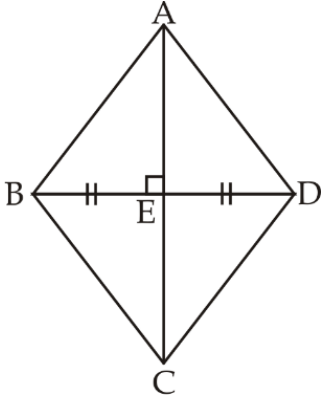
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S16. Ans.(c)

Sol.



In kite, vertical diagonal AC bisects the horizontal diagonal BD.

S17. Ans.(a)

Sol. Effective discount = $D_1 + D_2 - \frac{D_1 \times D_2}{100}$

$$= 25 + 4 - \frac{25 \times 4}{100}$$
$$= 28\%$$

S18. Ans.(b)

Sol.

$$\begin{array}{r} 112 \overline{)133} 1 \\ \underline{-112} \\ 21 \overline{)112} 5 \\ \underline{-105} \\ 7 \overline{)21} 3 \\ \underline{-21} \\ 0 \end{array}$$

HCF of 112 & 133 is 7.

S19. Ans.(b)

Sol. $\frac{(4a^2+12ab+9b^2)}{(2a+3b)} = \frac{(2a+3b)^2}{(2a+3b)}$

$$= (2a + 3b)$$

S20. Ans.(a)

Sol. On solving $(x - y = -1)$ & $(3x - 2y = 0)$, $(x, y) = (2, 3)$

$$\text{eq}^n \text{ of line} \Rightarrow (y - 3) = \frac{-1}{2}(x - 2)$$

$$\Rightarrow 2y - 6 = -x + 2$$

$$\Rightarrow x + 2y = 8$$

S21. Ans.(c)**Sol.** ATQ,

$$2\pi r = 154$$

$$\Rightarrow r = \frac{49}{2} \text{ cm}$$

$$\& 2\pi rh = 1232$$

$$2 \times \frac{22}{7} \times \frac{49}{2} \times h = 1232$$

$$h = 8 \text{ cm}$$

S22. Ans.(c)**Sol.** Let the no. be $30x$ (LCM of 3 and 10)

$$\text{Incorrect result} = \frac{3}{10} \times 30x = 9x$$

$$\text{Correct result} = \frac{10}{3} \times 30x = 100x$$

$$\text{Error\%} = \frac{100x - 9x}{100x} \times 100 = 91\%$$

S23. Ans.(c)

Sol. Area of sector = $\frac{\theta}{360^\circ} \times \pi r^2$

$$= \frac{90^\circ}{360^\circ} \times \frac{22}{7} \times 14 \times 14$$

$$= 154 \text{ cm}^2$$

S24. Ans.(c)

Sol. $(x + 9)(6 - 4x)(4x - 7)$

$$\Rightarrow (6x - 4x^2 + 54 - 36x)(4x - 7)$$

$$\Rightarrow (24x^2 - 16x^3 + 216x - 144x^2 - 42x + 28x^2 - 378 + 252x)$$

$$\text{Coefficient of } x^2 = (24 - 144 + 28)$$

$$= -92$$

S25. Ans.(c)

Sol. From, $5x - 3(2x - 7) > 3x - 1$

$$\Rightarrow x < 5.5$$

$$\& \text{, From, } 3x - 1 < 7 + 4x$$

$$\Rightarrow x > -8$$

From given options, $x = -6$ is the only value satisfies both equations.

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