

Quant Mega Quiz for SSC Tier-1 (Solutions)

S1. Ans.(c)

Sol.

$$\begin{array}{c}
 \boxed{\begin{array}{c} \text{milk} \\ 60 \text{ kg} \end{array}} \\
 \swarrow \quad \searrow \\
 \begin{array}{cc} \text{milk} & \text{water} \\ 54 & : \quad 6 \\ 9 & : \quad 1 \end{array} \\
 \text{Milk} = \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10} \\
 = \frac{729 \times \frac{60}{1000}}{1000 \times \frac{60}{1000}} \\
 = 43.74 \text{ kg}
 \end{array}$$

S2. Ans.(b)

Sol.

$$\begin{array}{c}
 10 \\
 \swarrow \quad \searrow \\
 5 \quad 5+1 \\
 5 \times 10 = 50 \\
 56 - 50 = 6 \\
 \text{Dog} = \frac{6}{1} \\
 = 6
 \end{array}$$

S3. Ans.(c)

Sol.

$$\begin{array}{l}
 \text{Total} = 65 + 16 \\
 = 81 \text{ unit} \\
 \sqrt[4]{16} \\
 \sqrt{81} \\
 = \frac{2}{3} > 1 \\
 1 \text{ unit} = 8 \text{ l} \\
 3 \text{ unit} = 8 \times 3 \\
 = 24 \text{ l}
 \end{array}$$

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S4. Ans.(b)

Sol.

$$\text{Ram} = 4x$$

$$\text{Shyam} = 5x$$

$$4x \times \frac{110}{100} = 4.4x$$

$$9x \times \frac{115}{100} = 82.8$$

$$x = 8$$

$$\text{Ram} = 35.2$$

$$\text{Shyam} = 82.8 - 35.2$$

$$= 47.6$$

$$\text{Shyam} = 40$$

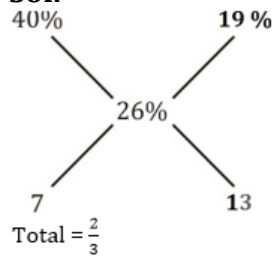
$$\text{Increase} = 7.6$$

$$\% \text{ Increase} = \frac{7.6}{40} \times 100$$

$$= 19\%$$

S5. Ans.(a)

Sol.



S6. Ans.(a)

Sol.

	A	:	B	:	C	
x →	3	:	5	:	2	= 10 × 18
y →	4	:	5	:		= 9 × 40
x →	54	:	90	:	36	
y →	160	:	200	:		
A →	54 + 160 = 214					

S7. Ans.(d)

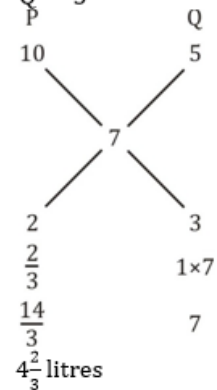
Sol.

$$P = \frac{10}{7} \times \text{water}$$

$$\frac{P}{W} = \frac{10}{7}$$

$$W = \frac{7}{5}Q$$

$$\frac{W}{Q} = \frac{7}{5}$$



S8. Ans.(c)

Sol.

$$\frac{a^2 \sec^2 \alpha \cos^2 \beta}{a^2} + \frac{b^2 \sec^2 \alpha \sin^2 \beta}{b^2} - \frac{c^2 \tan^2 \alpha}{c^2}$$
$$\sec^2 \alpha \cos^2 \beta + \sec^2 \alpha \sin^2 \beta - \tan^2 \alpha$$
$$\sec^2 \alpha (\cos^2 \beta + \sin^2 \beta) - \tan^2 \alpha$$
$$\sec^2 \alpha - \tan^2 \alpha$$
$$= 1$$

S9. Ans.(a)

Sol.

$$\alpha = 45^\circ$$

$$\beta = 0^\circ$$

$$\sqrt{2} \cos 45^\circ - \cos 0^\circ$$

$$\sqrt{2} \times \frac{1}{\sqrt{2}} - 1$$

$$1 - 1$$

$$= 0$$

S10. Ans.(d)

Sol.

$$\theta = 45^\circ$$

$$a = 1 + 1$$

$$a = 2$$

$$b = \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}$$

$$b = \frac{2}{\sqrt{2}}$$

$$b = \sqrt{2}$$

$$(b^2 - 1)a$$

$$(2 - 1) \times 2$$

$$= 2$$

Option (d)

$$2 \times \sqrt{2} \times \frac{1}{\sqrt{2}} = 2$$

S11. Ans.(b)

Sol.

$$42 \times 25 = x \times 14$$

$$x = 75 \text{ men}$$

S12. Ans.(d)

Sol.

$$\text{Old volume} = \pi r^2 h$$

$$\text{New radius } R = \frac{9}{10}r$$

New length L

$$\text{New volume} = \pi \frac{81}{100} r^2 \times L$$

$$\pi r^2 h = \pi \frac{81}{100} r^2 \times L$$

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$$L = \frac{100}{81}h$$

$$\text{Increase in length} = \frac{100}{81}h - h$$

$$= \frac{19}{81}h$$

$$\% \text{ increase} = \frac{\frac{19}{81}h}{h} \times 100$$

$$= \frac{1900}{81}$$

$$= 23.45$$

S13. Ans.(c)

Sol.

$$\frac{S_{50}}{50} = x$$

$$\frac{S_{49} + 45}{50} = x$$

$$\frac{S_{49}}{49} = x$$

$$\frac{S_{49} + 45}{50} = \frac{S_{49}}{49}$$

$$49 S_{49} + 45 \times 49 = 50 S_{49}$$

$$S_{49} = 45 \times 49$$

$$S_{50} = 45 \times 49 + 45$$

$$= 45 (49 + 1)$$

$$= 45 \times 50$$

$$\text{Mena} = \frac{45 \times 50}{50} = 45$$

S14. Ans.(b)

Sol. Rate = 20%

For 1st year

Rate (compounded half yearly) = 10%

$$\text{Effective Rate of Compound Interest} = 10 + 10 + \frac{10 \times 10}{100}$$

$$= 21\%$$

$$\text{CI for 1st year} = 20000 \times \frac{21}{100}$$

$$= 4200$$

$$\text{Principal at the starting of 2nd year} = 20000 + 4200$$

$$= 24200$$

Rate for 2nd year = 20%

$$\text{C.I earned during 2nd year} = 24200 \times \frac{20}{100}$$

$$= 4840$$

$$\text{Total CI} = 4200 + 4840$$

$$= 9040$$

S15. Ans.(a)

Sol.

$$4\pi = \pi r^2$$

$$\text{Radius of circle} = 2$$

$$\text{Radius of IN circle} = \frac{a}{2\sqrt{3}}$$

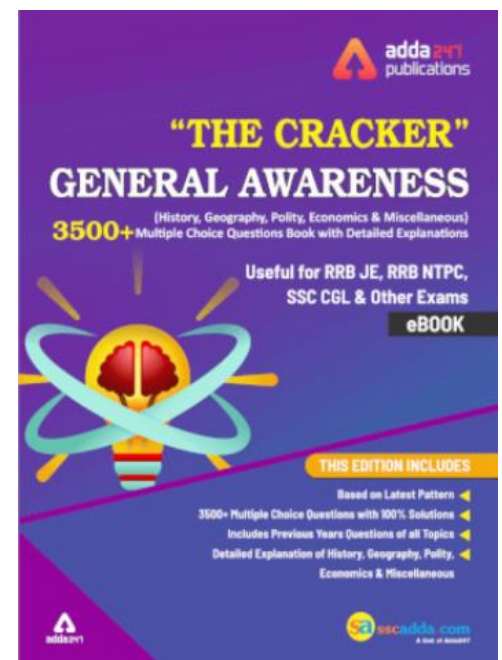
$$a = 4\sqrt{3}$$

$$\text{Area of equilateral triangle} = \frac{\sqrt{3}}{4} a^2$$

$$= \frac{\sqrt{3}}{4} \times 16 \times 3$$

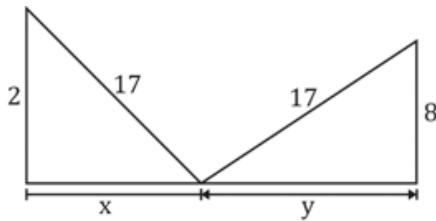
$$= 12\sqrt{3} \text{ cm}^2$$

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S16. Ans.(a)

Sol.



$$289 = 225 + x^2$$

$$x^2 = 64$$

$$x = 8$$

$$289 = 64 + y^2$$

$$y^2 = 225$$

$$y = 15$$

$$\text{Width of street} = 15 + 8$$

$$= 23 \text{ ft}$$

S17. Ans.(c)

Sol.

Let A takes x days to complete the work

$$B = x + 6$$

$$C = x - 2$$

$$A + B = C$$

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

$$\frac{x+6+x}{x(x+6)} = \frac{1}{x-2}$$

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

$$(2x+6)(x-2) = x^2+6x$$

$$2x^2-4x+6x-12 = x^2+6x$$

$$x^2-4x-12 = 0$$

$$x^2-6x+2x-12 = 0$$

$$x(x-6)+2(x-6) = 0$$

$$x = 6 \text{ days}$$

B alone will complete the work in

$$= 6 + 6 = 12 \text{ days}$$

S18. Ans.(d)

Sol.

$$\text{Profit Ratio} = 50000 \times 12 : 80000 \times 6$$

$$= 5 : 4$$

$$\text{Sarita's share} = 18000 \times \frac{5}{9}$$

$$= 10,000$$

S19. Ans.(d)

Sol.

ATQ,

$$\frac{1}{10} + \frac{1}{x} = \frac{1}{8}$$

$$\frac{x+10}{10x} = \frac{1}{8}$$

$$8x+80 = 10x$$

$$x = 40 \text{ days}$$

S20. Ans.(b)

Sol.

Time taken to travel 1 kilometer

$$= \frac{1}{10} \text{ h} = 6 \text{ minutes}$$

Time taken to cover 5 km

$$= 6 + 5 + 6 + 5 + 6 + 5 + 6 + 5 + 6$$

$$= 50 \text{ minutes}$$



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