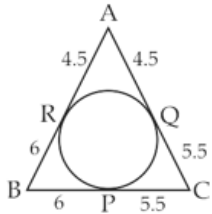


Quant Mega Quiz for SSC Tier-1 (Solutions)

S1. Ans.(c)

Sol.



$$2(4.5 + 5.5 + 6) = 32 \text{ cm}$$

S2. Ans.(b)

Sol.

$$\text{Required central angle} = \frac{42}{(20+42+40+35+43)} \times 360 = 84^\circ$$

S3. Ans.(c)

Sol.

let the original speed be x km/h

\therefore ATQ,

$$\frac{384}{x} + 2 = \frac{384}{x-16}$$

$$\Rightarrow \frac{x+192}{x} = \frac{192}{x-16}$$

$$\Rightarrow (x-16)(x+192) = 192x$$

$$\Rightarrow x^2 - 16x - 192 \times 16 = 0$$

$$\Rightarrow x = 64, -48$$

\therefore 75% of its original speed

$$= \frac{75}{100} \times 64 = 48 \text{ km/h}$$

S4. Ans.(a)

Sol.

Let present age of A and B be x & y years respectively.

\therefore ATQ,

$$\frac{x-4}{y-4} = \frac{4}{5} \quad \& \quad \frac{x+8}{y+8} = \frac{11}{13}$$

$$\Rightarrow 5x - 4y = 4 \quad \dots(i)$$

&

$$13x - 11y = -16 \quad \dots(ii)$$

Solving (i) & (ii) we get

$$x = 36 \text{ yrs} \quad \& \quad y = 44 \text{ yrs}$$

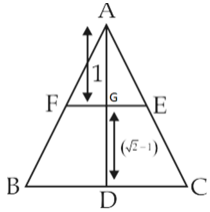
$$\therefore (x + y) = 80 \text{ yrs}$$

6 Months Subscription

SSC CGL
TIER-II MAHA PACK

Test Series, Live Classes,
Video Course, Ebooks

Bilingual (With e-Books)

S5. Ans.(b)**Sol.**Let area of $\triangle AFE = 1$ then area of $\square BCEF = 1$

$$\frac{\text{Area of } \triangle AFE}{\text{Area of } \triangle ABC} = \frac{1}{2} = \frac{AG^2}{AD^2}$$

$$\frac{AG}{AD} = \frac{1}{\sqrt{2}}$$

$$\frac{GD}{AG} = \frac{\sqrt{2} - 1}{1}$$

S6. Ans.(b)**Sol.**

$$4 - 2 \sin^2 \theta - 5 \cos \theta = 0$$

$$\Rightarrow 4 - 2(1 - \cos^2 \theta) - 5 \cos \theta = 0$$

$$\Rightarrow 4 - 2 + 2 \cos^2 \theta - 5 \cos \theta = 0$$

$$\Rightarrow 2 \cos^2 \theta - 5 \cos \theta + 2 = 0$$

$$\Rightarrow 2 \cos^2 \theta - \cos \theta - 4 \cos \theta + 2 = 0$$

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

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

$$\Rightarrow \cos \theta = \frac{1}{2} \text{ or } 2 \text{ (not possible)}$$

$$\therefore \theta = 60^\circ$$

now, $\sin \theta + \tan \theta$

$$= \sin 60^\circ + \tan 60^\circ$$

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

**S7. Ans.(a)****Sol.**

$$48 + 36 : 56 + 35$$

$$84 : 91$$

$$12 : 13$$

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

$$120 - \frac{120x}{100} = 40 + \frac{40x}{100}$$

$$80 = \frac{4x}{10} + \frac{12x}{10}$$

$$800 = 16x$$

$$x = 50$$

ATQ,

$$50\% \text{ of } 210$$

$$= 105$$

$$70\% \text{ of } 180$$

$$= 126$$

$$= \frac{126 - 105}{126} \times 100 = \frac{21}{126} \times 100 = \frac{50}{3} = 16\frac{2}{3}\%$$

S9. Ans.(d)**Sol.**

$$\frac{(\sqrt{5}x)^3 - (3\sqrt{3})^3}{\sqrt{5}x - 3\sqrt{3}y} = (Ax^2 + By^2 + Cxy)$$

$$5x^2 + 27y^2 + 3\sqrt{15}xy = Ax^2 + By^2 + Cxy$$

$$A = 5$$

$$B = 27$$

$$C = 3\sqrt{15}$$

$$Ax^2 + By^2 + Cxy = 6 \times 5 + 27 - \sqrt{15} \times 3\sqrt{15}$$

$$= 57 - 45$$

$$= 12$$

S10. Ans.(b)**Sol.**

985x3678y is divisible by 72 (9 × 8)

if this number is divisible by 8 then last three digit is also divisible by 8

$$= \frac{78y}{8} \text{ is divisible}$$

so, y must be 4

if 985x36784 is divisible by 9 then sum is also divisible

$$= \frac{50+x}{9} \text{ is divisible}$$

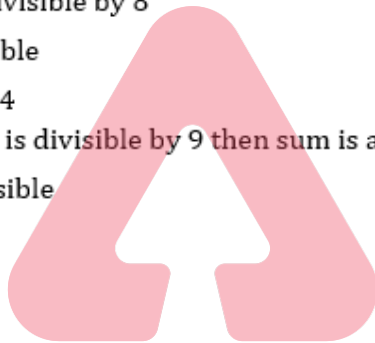
x must be 4

find, 4x - 3y

$$4 \times 4 - 3 \times 4$$

$$= 16 - 12$$

$$= 4$$



SSC

adda247

S11. Ans.(c)**Sol.**

$$\frac{22}{7} \times r^2 \times 784 = 246400$$

$$r = 10 \text{ cm.}$$

S12. Ans.(b)**Sol.**

$$\Rightarrow \frac{(2 \sin 45^\circ \cos 30^\circ)(-2 \cos 45^\circ \sin 30^\circ)}{(2 \cos 45^\circ \cos 30^\circ)(-2 \sin 45^\circ \sin 30^\circ)}$$

$$\Rightarrow 1$$

S13. Ans.(b)**Sol.**

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

$$x^4 + \frac{1}{x^4} = 194$$

NRA-CET Ready

SSC

MAHA PACK

Live Class, Video Course,
Test Series, eBooks

Bilingual (with eBooks)

12 Months Subscription

S14. Ans.(d)

Sol.

$$\begin{array}{ccc} \frac{A}{63} & & \frac{A+B}{36} \\ & \swarrow \quad \searrow & \\ & 4 \quad \quad 7 & \\ & \swarrow \quad \searrow & \\ & 9 \times 7 \times 4 & \\ A & : & B \\ 4 & & 3 = 7 \\ & & \downarrow \times 850 \quad \downarrow \times 850 \\ & & \textcircled{2550} \quad 5950 \end{array}$$

S15. Ans.(b)

Sol.

$$\begin{aligned} \frac{1}{3} \pi r^2 \times h &= 4620 \\ h &= \frac{3 \times 4620}{1386} \\ &= 10\text{m} \end{aligned}$$

S16. Ans.(a)

Sol.

Let total capacity of pond = 16 unit
On 42th day, water in pond = 16 unit
On 41th day, water in pond = 8 unit
On 40th day, water in pond = 4 unit
On 39th day, water in pond = 2 unit
On 38th day, water in pond = 1 unit
On 38th day pond is filled with $\frac{1}{16}$ of total capacity.



S17. Ans.(a)

Sol.

$$\begin{array}{ccc} 2800 & & 1750 \\ & \swarrow \quad \searrow & \\ & 2150 & \\ & \swarrow \quad \searrow & \\ 400 & : & 650 \\ 8 & : & 13 \end{array}$$

S18. Ans.(b)

Sol.

Ram	Pankaj	Atul	
7	42	4	
12	12	7	
<hr/>			
3	: 18	: 1	= 22
		↓	↓
		5060	22×5060
			$= 111,320$

S19. Ans.(c)

Sol. Max 26 numbers may be greater than zero.

S20. Ans(b)

Sol. Let the fraction be x

∴ ATQ,

$$x - \frac{2}{x} = \frac{7}{15}$$

$$\Rightarrow x^2 - 2 = \frac{7x}{15}$$

$$\Rightarrow 15x^2 - 30 = 7x$$

$$\Rightarrow 15x^2 - 7x - 30 = 0$$

On solving

$$x = \frac{5}{3}$$

S21. Ans.(c)

Sol. Let the principal be Rs. P

$$\therefore \text{C.I.} = P \left[\left(1 + \frac{R}{100} \right)^2 - 1 \right]$$

$$\Rightarrow 328 = P \left[\left(1 + \frac{5}{100} \right)^2 - 1 \right]$$

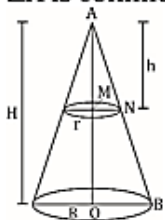
$$\Rightarrow P = \frac{328 \times 400}{41} = \text{Rs. } 3200$$

S22. Ans.(b)

Sol. Let H and R be the height and radius of bigger cone respectively and h and r that of smaller cone.

From triangles AOB and AMN.

∠A is common and MN || OB.



∴ Triangles AOB and AMN are similar,

$$\therefore \frac{AO}{AM} = \frac{BO}{MN}$$

$$\Rightarrow \frac{30}{h} = \frac{R}{r} \dots\dots\dots (i)$$

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

$$\text{Volume of bigger cone} = \frac{1}{3} \pi R^2 H$$

∴ According to the question,

$$\frac{1}{3} \pi r^2 h = \left(\frac{1}{3} \pi R^2 H \right) \times \frac{1}{27}$$

$$\Rightarrow \frac{27h}{H} = \left(\frac{30}{h} \right)^2 \dots\dots\dots [\text{From (i)}]$$

$$\Rightarrow \frac{27h}{H} = \frac{900}{h^2}$$

$$\Rightarrow 27h^3 = 900H = 900 \times 30$$

$$\Rightarrow h^3 = \frac{900 \times 30}{27} = 1000$$

$$\Rightarrow h = \sqrt[3]{1000} = 10 \text{ cm}$$

∴ Required height = 30 - 10 = 20 cm

TEST SERIES
Bilingual



SSC CGL 2019-20
PRIME
400+ TOTAL TESTS

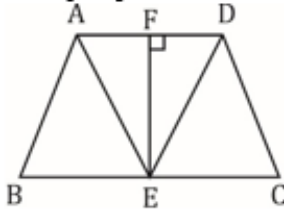
Validity : 12 Months



S23. Ans.(d)

Sol.

EF is perpendicular on side AD.



∴ Area of trapezium

$$= \frac{1}{2} (AD + BC) \times EF$$

$$\text{Area of } \triangle AED = \frac{1}{2} \times AD \times EF$$

∴ Required ratio

$$= \frac{\frac{1}{2} (AD + BC) \times EF}{\frac{1}{2} \times AD \times EF}$$

$$= \frac{AD + BC}{AD}$$

S24. Ans.(c)

Sol.

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

$$\therefore 4 \times \frac{22}{7} \times r^2 = 346.5$$

$$\therefore r^2 = \frac{346.5 \times 7}{4 \times 22} = 27.5$$

$$\therefore r = \sqrt{27.5625} = 5.25 \text{ cm}$$

SSC

adda247

S25. Ans.(c)

Sol. If the number of sides of regular polygon be n, then Each interior angle

$$= \frac{(2n-4) \times 90^\circ}{n}$$

And each exterior angle = $\frac{360^\circ}{n}$

$$\therefore \frac{(2n-4)}{n} \times 90^\circ = \frac{(5 \times 360^\circ)}{n}$$

$$\Rightarrow n = \frac{24}{2} = 12.$$

S26. Ans.(a)

Sol.

Volume of pyramid

$$= \frac{1}{3} \times \text{area of base} \times \text{height}$$

$$\Rightarrow 500 = \frac{1}{3} \times 30 \times h$$

$$\Rightarrow h = \frac{500}{10} = 50 \text{ metre}$$

TEST SERIES

Bilingual



SSC CGL TIER-II

PRIME

59 Total Tests | eBooks

S27. Ans.(c)

Sol.

Hypotenuse of base

$$= \sqrt{5^2 + 12^2}$$

$$= 13 \text{ cm}$$

∴ Surface area

$$= h(a+b+c)$$

$$= 10(5+12+13) = 300 \text{ sq.cm.}$$

$$\text{Area of base} = \frac{1}{2} \times 5 \times 12$$

$$= 30 \text{ sq.cm.}$$

∴ Total surface area of lateral surfaces

$$= 300 + 30$$

$$= 330 \text{ sq. cm.}$$

S28. Ans.(a)

Sol.

$$\text{In-radius} = \frac{a}{2\sqrt{3}}$$

$$= \frac{24}{2\sqrt{3}} = 4\sqrt{3} \text{ cm}$$

$$\text{Area of triangle} = \frac{\sqrt{3}}{4} \times (\text{side})^2$$

$$= \frac{\sqrt{3}}{4} \times 24 \times 24$$

$$= 249.408 \text{ sq.cm.}$$

$$\text{Area of circle} = \pi r^2$$

$$= \frac{22}{7} \times 4\sqrt{3} \times 4\sqrt{3}$$

$$= \frac{1056}{7} = 150.86 \text{ sq.cm.}$$

Area of remaining part

$$= (249.408 - 150.86) \text{ sq. cm.}$$

$$\approx 98.55 \text{ sq.cm.}$$

SSC

adda247

S29. Ans.(a)

Sol.

Lateral surface area of prism = 3 × side × height

$$\therefore 3 \times \text{side} \times \text{height} = 120$$

$$\Rightarrow \text{Side} \times \text{height} = \frac{120}{3}$$

$$= 40 \text{ sq.cm.} \dots\dots\dots (i)$$

Volume of prism = Area of base × height

$$\Rightarrow 40\sqrt{3} = \frac{\sqrt{3}}{4} \times \text{side}^2 \times \text{height}$$

$$\Rightarrow \frac{40\sqrt{3} \times 4}{\sqrt{3}} = \text{side}^2 \times \text{height}$$

$$\Rightarrow \text{side}^2 \times \text{height}$$

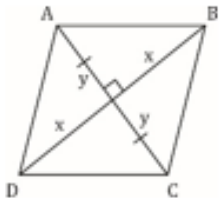
$$= 160 \text{ cu.cm} \dots\dots\dots (ii)$$

Dividing equation (ii) by (i),

$$\text{Side} = \frac{160}{40} = 4 \text{ cm.}$$

S30. Ans.(c)

Sol.



Side of a rhombus

$$= \frac{2p}{4} = \frac{p}{2} \text{ units}$$

$$OA = OC = y \text{ (let)}$$

$$\therefore AC = 2y \text{ units}$$

$$OB = OD = x \text{ (let)}$$

$$\therefore BD = 2x \text{ units}$$

From ΔOAB ,

$$\angle AOB = 90^\circ$$

$$AB^2 = OA^2 + OB^2$$

$$\Rightarrow \frac{p^2}{4} = x^2 + y^2$$

$$\Rightarrow p^2 = 4x^2 + 4y^2 \dots\dots\dots (i)$$

$$\text{And } 2x + 2y = m$$

On squaring both sides,

$$4x^2 + 4y^2 + 8xy = m^2$$

$$\Rightarrow p^2 + 8xy = m^2$$

$$\Rightarrow 8xy = m^2 - p^2$$

$$\Rightarrow 4xy = \frac{1}{2}(m^2 - p^2)$$

\therefore Area of the rhombus

$$= \frac{1}{2} \times 2x \times 2y = \frac{1}{2} \times 4xy$$

$$= \frac{1}{2} \times \frac{1}{2}(m^2 - p^2)$$

$$= \frac{1}{4}(m^2 - p^2) \text{ sq. units}$$

Complete Preparation for
SSC Exams

SSC
EXTREME

Video Courses, Test Series,
eBooks

SSC
adda247