

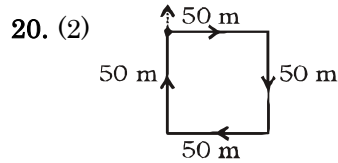
ANSWER SET - 59

- 01.(2) 02.(3) 03.(3) 04.(4) 05.(1)
 06.(1) 07.(4) 08.(1) 09.(2) 10.(3)
 11.(2) 12.(3) 13.(3) 14.(3) 15.(4)
 16.(4) 17.(2) 18.(2) 19.(4) 20.(2)
 21.(1) 22.(2) 23.(1) 24.(3) 25.(3)
 26.(4) 27.(3) 28.(1) 29.(2) 30.(4)
 31.(2) 32.(2) 33.(3) 34.(2) 35.(4)
 36.(3) 37.(2) 38.(1) 39.(2) 40.(2)
 41.(4) 42.(1) 43.(2) 44.(3) 45.(3)
 46.(2) 47.(2) 48.(2) 49.(1) 50.(2)
 51.(3) 52.(4) 53.(1) 54.(1) 55.(4)
 56.(1) 57.(1) 58.(3) 59.(3) 60.(4)
 61.(2) 62.(4) 63.(1) 64.(2) 65.(3)
 66.(3) 67.(2) 68.(3) 69.(1) 70.(3)
 71.(2) 72.(2) 73.(2) 74.(1) 75.(4)
 76.(4) 77.(3) 78.(2) 79.(1) 80.(1)
 81.(2) 82.(2) 83.(3) 84.(3) 85.(2)
 86.(3) 87.(4) 88.(4) 89.(2) 90.(3)
 91.(4) 92.(3) 93.(2) 94.(4) 95.(3)
 96.(2) 97.(4) 98.(2) 99.(1) 100.(3)

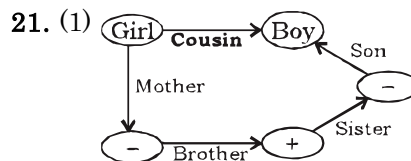
EXPLANATION - 59

1. (2) "Five Point Someone" is written by Chetan Bhagat and "Swami and Friends" is written by R.K. Narayan.
2. (3) $\frac{BFJ}{+2} : \frac{KOS}{+2} :: \frac{KOS}{-9} : \frac{TXB}{-9}$
3. (3) As, $14 \Rightarrow 14 \times 2 + 2 = 30$
 Similarly,
 $16 \Rightarrow 16 \times 2 + 2 = 34$
4. (4) $\frac{ZBD}{+2} \frac{JLN}{+2} \frac{OSU}{+2} \frac{NOP}{+1}$
5. (1) Except Body, others are parts of body.
6. (1) **1356** $\Rightarrow 1 + 3 + 5 + 6 \neq 25$
 $5497 \Rightarrow 5 + 4 + 9 + 7 = 25$
 $7864 \Rightarrow 8 + 7 + 6 + 4 = 25$
 $9943 \Rightarrow 9 + 9 + 4 + 3 = 25$
7. (4) Pemmafrost \rightarrow Permanence
 \rightarrow Permanent \rightarrow Permeability.
8. (1) As, $\begin{matrix} D & I & S & O & R & D & E & R \\ \swarrow & \searrow & \swarrow & \searrow & \swarrow & \searrow & \swarrow & \searrow \\ O & S & I & D & R & E & D & R \end{matrix}$
 Similarly, $\begin{matrix} P & R & A & C & T & I & C & E \\ \swarrow & \searrow & \swarrow & \searrow & \swarrow & \searrow & \swarrow & \searrow \\ C & A & R & P & E & C & I & T \end{matrix}$
9. (2) $14 \times 6 \times 3 \times 5 \times 4 \times 20$
 From option (2),
 $14 + 6 \div 3 \times 5 - 4 = 20$
 $\Rightarrow 14 + 2 \times 5 - 4 = 20$
 $\Rightarrow 14 + 10 - 4 = 20$
 $\Rightarrow 20 = 20$
 \therefore Option (2) is the right answer.
10. (3) Mohit > Kamal > Amit > Ramesh > **Rohit**
 Hence, Rohit is the shortest.
11. (2) $\frac{DJO}{+1} \frac{EKP}{+1} \frac{FLQ}{+1} \frac{GMR}{+1} \frac{HNS}{-1}$
12. (3) $\frac{PR}{+6} \frac{VX}{+6} \frac{BD}{+6} \frac{HJ}{+6}$

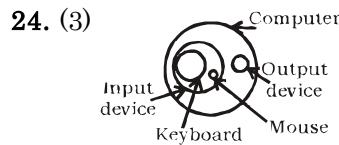
13. (3) $\frac{4}{\times 3+1} \frac{13}{\times 3+1} \frac{40}{\times 3+1} \frac{121}{\times 3+1} \frac{364}{\times 3+1}$
14. (3) Neither I nor II follow.
15. (4) **Prem** > Raju > Sunder > Hari > Ompal
 Hence, Prem owns the highest share of land.
16. (4) $3^2 + 4^2 = 5^2$
 $12^2 + 5^2 = 13^2$
 $24^2 + 7^2 = 625$
 $= 25^2$
17. (2) $6 \times 7 = 42$
 $8 \times 4 = 32$
 $9 \times 5 = 45$
18. (2) $81 \times 9 + 10 - 6 \div 5$
 After changing the signs as per the given detail,
 $81 \div 9 - 10 \times 6 + 5$
 $= 9 - 60 + 5$
 $= -46$
19. (4) abc / aabbcc / aaabbb



He is present at his original position.



22. (2) 23. (1)



25. (3) **H A I R Y**

$\downarrow \downarrow \downarrow \downarrow \downarrow$
03, 33, 57, 78, 99

51. (3) Total discount = ₹ (820 - 570.72)
 = ₹ 249.28
 First discount = $820 \times \frac{20}{100}$
 = ₹ 164
 \therefore Second discount = ₹ (249.28 - 164) = ₹ 85.28
 Price of the article after the first discount
 = ₹ (820 - 164) = ₹ 656
 If the second discount be x%,
 then x% of 656 = 85.28
 $\Rightarrow x = \frac{85.28 \times 100}{656} = 13\%$

52. (4) Part of the tank filled in 3 minutes by pipes P and Q
 $= 3 \left(\frac{1}{12} + \frac{1}{15} \right) = 3 \left(\frac{5+4}{60} \right)$
 $= \frac{3 \times 9}{60} = \frac{9}{20}$
 Remaining part = $1 - \frac{9}{20} = \frac{11}{20}$
 \therefore Time taken by Q
 $= \frac{11}{20} \times 15 = \frac{33}{4} = 8\frac{1}{4}$ minutes
53. (1) Number of books in each stack
 = HCF of 336, 240, 96 = 48
 240) 336 (1
 240

 96) 240 (2
 192

 48) 96 (2
 96

 0
- \therefore Total number of stacks
 $= \frac{336}{48} + \frac{240}{48} + \frac{96}{48}$
 $= 7 + 5 + 2 = 14$
54. (1) Volume of the block = $(10 \times 5 \times 2) \text{ cm}^3$
 = 100 cm^3 .
 Volume of the cone carved out
 $= \left(\frac{1}{3} \times \frac{22}{7} \times 3 \times 3 \times 7 \right) \text{ cm}^3 = 66 \text{ cm}^3$
 \therefore Wood wasted = $(100 - 66)\% = 34\%$
55. (4) Cost price of article
 = ₹ $\left(\frac{100}{95} \times 4085 \right) = ₹ 4300$
56. (1) $5 \tan \theta = 4 \Rightarrow \tan \theta = \frac{4}{5}$
 $= \frac{\text{Perpendicular}}{\text{Base}}$
 Now, $\frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 3 \cos \theta} = \frac{5 \tan \theta - 3}{5 \tan \theta + 3}$
 $= \frac{5 \times \frac{4}{5} - 3}{5 \times \frac{4}{5} + 3} = \frac{1}{7}$
57. (1) Let the speed of the stream be x miles/hr.
 Then,
 Speed downstream = $(10 + x)$

miles/hr.

Speed upstream = $(10 - x)$ miles/hr.

$$\therefore \frac{36}{(10-x)} - \frac{36}{(10+x)} = \frac{90}{60}$$

$$\Leftrightarrow 72x \times 60 = 90(100 - x^2)$$

$$\Leftrightarrow x^2 + 48x - 100 = 0$$

$$\Leftrightarrow (x + 50)(x - 2) = 0$$

$$\Leftrightarrow x = \mathbf{2 \text{ mile/hr.}}$$

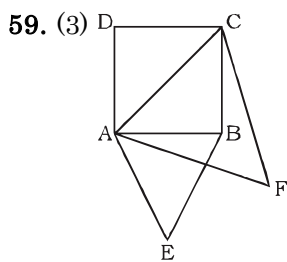
58. (3) $\frac{\sin 2\theta + \sin \theta}{\cos 2\theta + \cos \theta + 1}$

$$= \frac{2\sin\theta \cdot \cos\theta + \sin\theta}{2\cos^2\theta - 1 + \cos\theta + 1}$$

$$= \frac{\sin\theta(2\cos\theta + 1)}{2\cos^2\theta + \cos\theta}$$

$$= \frac{\sin\theta(2\cos\theta + 1)}{\cos\theta(2\cos\theta + 1)} = \frac{\sin\theta}{\cos\theta}$$

$$= \tan\theta$$



Here $AC^2 = 2AB^2$

As $\triangle ABE$ and $\triangle ABC$ are equiangular

so $\triangle ABE \sim \triangle ABC$

[The ratio of the areas of two similar triangles is equal to the ratio of the square of their corresponding sides]

$$\frac{\text{area of } (\triangle ABE)}{\text{area of } (\triangle ACF)} = \frac{AB^2}{AC^2}$$

$$= \frac{AB^2}{2AB^2} = \frac{1}{2}$$

60. (4) Let cost price = ₹ 100

Then, $\frac{2}{5}$ of Marked Price Selling price = 75

$$\Rightarrow \text{Marked Price} = ₹ \left(\frac{75 \times 5}{2} \right)$$

$$= ₹ \frac{375}{2}$$

$$\therefore \text{Required ratio} = \frac{375}{2} : 100$$

$$= 375 : 200 = \mathbf{15 : 8}$$

61. (2) Let x is the no. of individuals

who were covered. then,

Percentage of uncertain individuals

$$= [100 - (20 + 60)]\% = 20\%$$

$$\therefore 60\% \text{ of } x - 20\% \text{ of } x = 720$$

$$\Leftrightarrow 40\% \text{ of } x = 720$$

$$\Leftrightarrow \frac{40}{100}x = 720$$

$$\Leftrightarrow x = \left(\frac{720 \times 100}{40} \right) = \mathbf{1800}$$

62. (4) ATQ,

$$\frac{13}{4} \times \frac{2}{3} - \left(\frac{9}{4} - \frac{5}{3} \right) \times \frac{3}{4}$$

$$= \frac{13}{6} - \left(\frac{27 - 20}{12} \right) \times \frac{3}{4}$$

$$= \frac{13}{6} - \frac{7}{12} \times \frac{3}{4} = \frac{13}{6} - \frac{7}{16}$$

$$= \frac{104 - 21}{48} = \frac{83}{48}$$

63. (1) $\frac{x}{y} + \frac{y}{x} = -2 \Rightarrow \frac{x^2 + y^2}{xy} = -2$

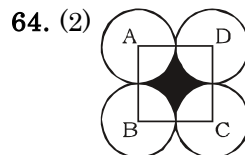
$$\Rightarrow x^2 + y^2 = -2xy$$

$$\Rightarrow x^2 + y^2 + 2xy = 0$$

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

$$\Rightarrow x + y = 0$$

$$\therefore x^3 + y^3 + 3xy(x + y) = (x + y)^3 = \mathbf{0}$$



Area of the shaded region = Area of square of side 6 cm - $4 \times$ a right angled sector

$$= 36 - 4 \times \frac{\pi \times 3^2}{4}$$

$$= 36 - 9\pi = 9(4 - \pi) \text{ sq.cm}$$

65. (3) Let large number = x then
Smaller number = $520 - x$
ATQ,

$$\frac{96x}{100} = \frac{(520 - x)}{100} \times 112$$

$$\Rightarrow 96x = 520 \times 112 - 112x$$

$$\Rightarrow 112x + 96x = 520 \times 112$$

$$\Rightarrow 208x = 520 \times 112$$

$$\Rightarrow x = \frac{520 \times 112}{208} = 280$$

$$\therefore \text{Smaller number}$$

$$= 520 - 280 = \mathbf{240}$$

66. (3) Let AB be the tower

Such that

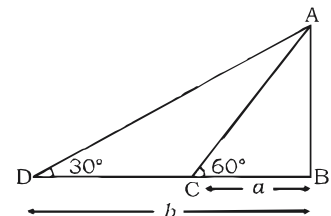
$CB = a$ and $BD = b$

In $\triangle ABC$

$$\tan 60^\circ = \frac{AB}{BC} = \frac{AB}{a}$$

$$\Rightarrow AB = a\sqrt{3} \quad \dots(i)$$

In $\triangle ABD$,



$$\tan 30^\circ = \frac{AB}{BD}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{AB}{b} \quad \dots(ii)$$

From equations (i) and (ii)

$$(AB)^2 = ab \Rightarrow AB = \sqrt{ab}$$

67. (2) $m^2 - n^2 = (\tan\theta + \sin\theta)^2 - (\tan\theta - \sin\theta)^2$

$$= 4 \tan\theta \sin\theta \quad [\because (a+b)^2 - (a-b)^2 = 4ab]$$

and

$$4\sqrt{mn} = 4\sqrt{(\tan\theta + \sin\theta)(\tan\theta - \sin\theta)}$$

$$= 4\sqrt{\tan^2\theta - \sin^2\theta}$$

$$= 4\sqrt{\frac{\sin^2\theta}{\cos^2\theta} - \sin^2\theta}$$

$$= 4\sqrt{\frac{\sin^2\theta - \sin^2\theta \cos^2\theta}{\cos^2\theta}}$$

$$= 4\sqrt{\frac{\sin^2\theta(1 - \cos^2\theta)}{\cos^2\theta}}$$

$$= 4\sqrt{\frac{\sin^4\theta}{\cos^4\theta}} = 4\frac{\sin^2\theta}{\cos^2\theta}$$

$$= 4\sin\theta \frac{\sin\theta}{\cos\theta} = 4\sin\theta \tan\theta$$

$$\Rightarrow m^2 - n^2 = 4\sqrt{mn}$$

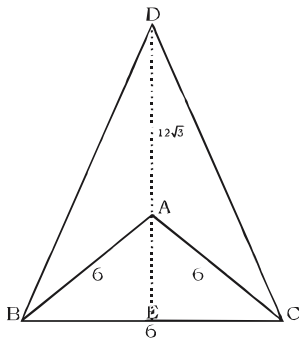
68. (3) Given series $1 + 3 + 5 + 7 + \dots + 99$

Number of terms between 1 to 99

$$= \frac{1 + 99}{2} = 50$$

So, sum of 50 terms/odd numbers = $50^2 = \mathbf{2500}$

69. (1)



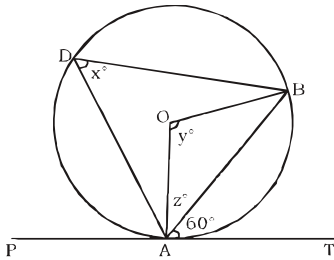
In the figure, equilateral triangle ABC is the base of the pyramid. Where $AB = BC = CA = 6$ cm
 \Rightarrow Volume of the pyramid

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

$$= \frac{1}{3} \times \frac{\sqrt{3}}{4} \times 6 \times 6 \times 12\sqrt{3}$$

$$= 108 \text{ cm}^3$$

70. (3)



$\therefore x^\circ$ is an angle in the alternative segment for $\angle BAT$

$$\Rightarrow \angle BAT = x = 60^\circ$$

$\therefore y^\circ$ is angle at centre and x° is angle in remaining arc

$$\Rightarrow y^\circ = x \times 2 = 120^\circ$$

\therefore In $\triangle OAB$, $\angle OBA = \angle OAB = z^\circ$

$$\Rightarrow y + z + z = 180^\circ$$

$$\Rightarrow 120^\circ + 2z = 180^\circ$$

$$\Rightarrow z = 30^\circ$$

71. (2) Let B join the business for x months.

ATQ,

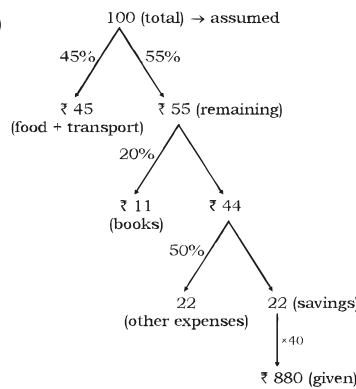
$$450 \times 12 : 300 \times x = 2 : 1$$

$$\Rightarrow \frac{5400}{300x} = \frac{2}{1}$$

$$\Rightarrow x = 9 \text{ months}$$

Hence, after $12 - 9 = 3$ months B joins the business.

72. (2)



$$\Rightarrow \text{Income} = 100 \times 40 = ₹ 4000$$

$$73. (2) \text{ Total}_B = \frac{50,000 \times 10}{100} = 5000$$

Males are 30%, so females
 $= 100 - 30 = 70\%$

Difference $= 70 - 30 = 40\%$

\therefore Required answer

$$= \frac{5000 \times 40}{100} = 2000$$

$$74. (1) \text{ Total males} = \frac{50,000}{100 \times 100} \{20 \times$$

$$50 + 10 \times 30 + 25 \times 20 + 15 \times 40$$

$$+ 10 \times 60 + 20 \times 50\}$$

$$= 5\{1000 + 300 + 500 + 600 + 600$$

$$+ 1000\}$$

$$= 5 \times 4000 = 20,000$$

75. (4) Total population in all six cities = 50,000

Total females in all six cities

$$= 50,000 - 20,000 = 30,000$$

$$\therefore \text{Required \%} = \frac{30,000}{50,000} \times 100$$

$$= 3 \times 20 = 60\%$$

76. (4) 'No error' (Given sentence is in Simple Present Tense)

77. (3) This is a 'special conditions with should. Sometimes, we use 'should' in place of 'if'.

Ex. If you stay here, you will meet him.

Should you stay here, you will meet him.

78. (2) 'Eke out' is phrase which means 'to make something go further or last longer'.

95. (3) If two actions take place in the past, one after the others the first action will be in Past Perfect Tense and the second action in 'Simple Past Tense'. Hence replace 'left' with 'had left'