

25. (C)

26. (B) A.T.Q,

$$a_4 = a_1 + 3d \text{ and } a_{12} = a_1 + 11d$$

$$\Rightarrow a_1 + 4d = 5 \dots(i)$$

$$\Rightarrow a_1 + 11d = 29 \dots(ii)$$

Subtracting eq. (i) and from eq. (ii)

$$= a_1 + 11d - a_1 - 3d = 29 - 5$$

$$\Rightarrow 8d = 24$$

$$\Rightarrow d = 3$$

Putting 'd' in eq (i),

$$= a_1 + 3(3) = 5$$

$$= a_1 = -4$$

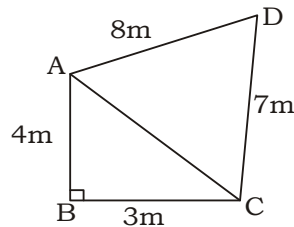
Now,

$$a_{15} = a_1 + 14d$$

$$= -4 + 14(3)$$

$$= 38$$

27. (B)



$$\angle ABC = 90^\circ$$

$$AC = \sqrt{AB^2 + BC^2} = \sqrt{3^2 + 4^2} = 5 \text{ m}$$

$$\text{Now, area of } \triangle ABC = \frac{1}{2} \times AB \times BC$$

$$= \frac{1}{2} \times 3 \times 4 = 6 \text{ m}^2$$

Now, In $\triangle ADC$

$$S = \frac{8 + 5 + 7}{2} = \frac{20}{2} = 10 \text{ m}$$

Area of $\triangle ADC$

$$= \sqrt{10(10-5)(10-8)(10-7)}$$

$$= \sqrt{10 \times 5 \times 2 \times 3}$$

$$= 10\sqrt{3} \text{ cm}^2$$

28. (A) Let the unit digit and tens digit of number be x and y .

$$\text{Number} = 10y + x$$

A.T.Q

$$10x + y = 10y + x + 27$$

$$\Rightarrow x - y = 3 \dots(i)$$

$$\Rightarrow x + y = 9 \dots(ii) \quad \dots(\text{given})$$

From eq. (i) and eq. (ii), we get

$$x = 6$$

$$\text{and, } y = 3$$

$$\therefore \text{Required number} = 10(3) + 6 = 36$$

29. (C) Required average height

$$= \frac{32 \times 139 + 48 \times 158}{32 + 48}$$

$$= 150.4 \text{ cm.}$$

30. (B) Average speed = $\frac{\text{Total Distance}}{\text{Total time}}$

$$= \frac{80 + 95}{\frac{80}{16} + \frac{95}{19}} = \frac{175}{10} = 17.5 \text{ km/h.}$$

31. (B) $C.I = P \left[\left(1 + \frac{r}{100} \right)^T - 1 \right]$

$$C.I = 45000 \left[\left(1 + \frac{10}{100} \right)^3 - 1 \right]$$

$$= 45000 \left[\frac{1331}{1000} - 1 \right]$$

$$= ₹14895$$

$$S.I = \frac{63000 \times 10 \times 6}{100} = ₹37800$$

$$\text{Required percentage} = \frac{14895}{37800} \times 100$$

$$= 39.40\%$$

32. (C) $2 \sin x + \cos x = \frac{\sqrt{3}}{2}$

$$\sin x - 2 \cos x = \sqrt{(2)^2 + (1)^2} - \left(\frac{\sqrt{3}}{2} \right)^2$$

$$= \sqrt{5 - \frac{3}{4}} = \frac{\sqrt{17}}{2}$$

33. (C) $x + \frac{1}{x} = 8 \dots(\text{given } \dots(i))$

In equation, divide numerator and denominator by x

$$\frac{\frac{3x}{x}}{\frac{7x^2 - 5x + 7}{x}} = \frac{3}{7 \left(x + \frac{1}{x} \right) - 5} \dots(ii)$$

Putting eq. (i) in eq. (ii),

$$= \frac{3}{7(8)-5} = \frac{3}{56-5} = \frac{3}{51} = \frac{1}{17}$$

34. (C) Average = $\frac{Sn}{18} = \frac{18}{2} \frac{(14+14 \times 18)}{18}$

$$= \frac{14 \times 19}{2} = 133$$

35. (B) Let the numbers be x and y .
A.T.Q.,

$$x + y = 56 \text{ --- (i) and } x - y = 18 \text{ --- (ii)}$$

from equation (i) and equation (ii)
 $x = 37$ and $y = 19$

$$\therefore \text{ Required value} = 37 \times 19 = 703$$

36. (D) $x(x^3 - x^2 + 3x)$... (i)

Put $x = 6$ in eq. (i)

$$\Rightarrow 6(6^3 - 6^2 + 3 \times 6)$$

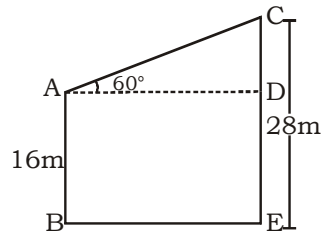
$$\Rightarrow 1188$$

37. (C) Total length = $15 + 5 + 5 = 25$ m.

$$\text{Total Breadth} = 11 + 5 + 5 = 21 \text{ m.}$$

$$\therefore \text{ Required area} = 25 \times 21 = 525 \text{ m}^2$$

38. (B)



$$CD = CE - DE.$$

$$= 28 - 16 \quad (\because AB = DE)$$

In $\triangle ACD$.

$$\sin 60^\circ = \frac{CD}{AC}$$

$$\Rightarrow \frac{\sqrt{3}}{2} = \frac{12}{AC}$$

$$\Rightarrow AC = \frac{24}{\sqrt{3}} = 8\sqrt{3} \text{ m}$$

39. (A) Let the speed of boat and current be ' x ' km/hr and ' y ' km/hr respectively.

A.T.Q.,

$$x + y = 16 \quad \dots(i)$$

$$x - y = 10 \quad \dots(ii)$$

adding eq. (i) and eq. (ii), we get $x = 13$ km/h

$$y = 3 \text{ km/hr.}$$

40. (B) Required cost = $\pi r^2 \times \text{Rate}$

$$= \frac{22}{7} \times \frac{35}{2} \times \frac{35}{2} \times 148$$

$$= \text{Rs. } 142450$$

RRB ALP - 01 (ANSWER KEY)

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|---------|---------|---------|---------|---------|
| 1. (A) | 16. (A) | 31. (B) | 46. (C) | 61. (D) |
| 2. (A) | 17. (B) | 32. (C) | 47. (D) | 62. (C) |
| 3. (C) | 18. (D) | 33. (C) | 48. (B) | 63. (C) |
| 4. (A) | 19. (D) | 34. (C) | 49. (A) | 64. (A) |
| 5. (B) | 20. (B) | 35. (B) | 50. (B) | 65. (C) |
| 6. (C) | 21. (A) | 36. (D) | 51. (A) | 66. (A) |
| 7. (B) | 22. (D) | 37. (C) | 52. (B) | 67. (B) |
| 8. (D) | 23. (B) | 38. (B) | 53. (A) | 68. (D) |
| 9. (B) | 24. (C) | 39. (A) | 54. (C) | 69. (B) |
| 10. (B) | 25. (C) | 40. (B) | 55. (D) | 70. (D) |
| 11. (A) | 26. (B) | 41. (B) | 56. (D) | 71. (A) |
| 12. (A) | 27. (B) | 42. (B) | 57. (C) | 72. (A) |
| 13. (A) | 28. (A) | 43. (C) | 58. (C) | 73. (A) |
| 14. (B) | 29. (C) | 44. (D) | 59. (D) | 74. (D) |
| 15. (A) | 30. (B) | 45. (B) | 60. (B) | 75. (D) |