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**S36. Ans.(b)**

**Sol.** male population who did not visit park A =  $\frac{20}{100} \times \frac{60}{100} \times 400 = 48$

Male population who visited in park A =  $400 - (150 + 48) = 202$

Required % =  $\frac{202}{500} \times 100 = 40.4\%$

**S37. Ans.(d)**

**Sol.** male population in park B, C & D =  $(500 - 200) + (700 - 350) + (800 - 450) = 1000$

Required average =  $\frac{1000}{3} = 333.33$

**S38. Ans.(e)**

**Sol.**

Male population in park E =  $900 - 500 = 400$

Required % =  $\frac{450-400}{400} \times 100 = 12.5\%$

**S39. Ans.(a)**

**Sol.** male population in park A & D =  $400 - 150 + 800 - 450 = 600$

Required ratio =  $600 : (200 + 500) = 6 : 7$

**S40. Ans.(c)**

**Sol.** total female population =  $150 + 200 + 350 + 450 + 500 = 1650$

Female population above 80 years age =  $30 \times 5 = 150$

Required average =  $\frac{1650-150}{5} = 300$

**S41. Ans.(b)**

**Sol.** let present age of A & B be x & y years respectively

$$\frac{x-4}{y-4} = \frac{5}{3}$$

$$3x - 12 = 5y - 20$$

$$3x = 5y - 8 \dots\dots\dots (i)$$

Let present age of C be z years

$$x + y + z = 80$$

$$x + y = z$$

$$x + y = 40 \dots\dots\dots (ii)$$

On solving (i) & (ii)

$$x = 24 \text{ years}$$

Present age of A = 24 years

**S42. Ans.(d)**

**Sol.** let speed of boat in still water & stream be 8x kmph & x kmph respectively

ATQ,  $\frac{54}{8x+x} + \frac{42}{8x-x} = 4$

$$\frac{6}{x} + \frac{6}{x} = 4$$

$$x = 3$$

Downstream speed =  $8x + x = 27 \text{ kmph}$

**S43. Ans.(a)****Sol.** let salary of Manoj be Rs  $100x$ 

Amount given to wife =  $\frac{60}{100} \times 100x = \text{Rs. } 60x$

ATQ,  $60x \times \frac{50}{100} = 18000$

$x = 600$

Salary of Manoj =  $100x = \text{Rs } 60000$

**S44. Ans.(c)****Sol.** let length & breadth of rectangle be  $4x$  cm &  $7x$  cm

ATQ,  $2(4x + 7x) = 88$

$x = 4$

Area of rectangle =  $4x \times 7x = 448 \text{ cm}^2$

**S45. Ans.(b)****Sol.** radius of second circle =  $1.5 \times 14 = 21 \text{ cm}$ 

Required area of circle =  $\pi r^2 = \frac{22}{7} \times 21 \times 21 = 1386 \text{ cm}^2$

**S46. Ans.(e)****Sol.**

I.  $x^2 - 7x + 12 = 0$

$x^2 - 4x - 3x + 12 = 0$

$(x - 4)(x - 3) = 0$

$x = 3, 4$

II.  $y^2 - 8y + 12 = 0$

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

$(y - 6)(y - 2) = 0$

$y = 2, 6$

No relation can be established

**S47. Ans.(d)****Sol.**

I.  $2x^2 + x - 28 = 0$

$2x^2 + 8x - 7x - 28 = 0$

$2x(x + 4) - 7(x + 4) = 0$

$(2x - 7)(x + 4) = 0$

$x = -4, \frac{7}{2}$

II.  $2y^2 - 23y + 56 = 0$

$2y^2 - 16y - 7y + 56 = 0$

$2y(y - 8) - 7(y - 8) = 0$

$(2y - 7)(y - 8) = 0$

$y = \frac{7}{2}, 8$

$y \geq x$

**S48. Ans.(e)****Sol.**

$$\begin{aligned} \text{I. } 2x^2 - 7x - 60 &= 0 \\ 2x^2 - 15x + 8x - 60 &= 0 \\ x(2x - 15) + 4(2x - 15) &= 0 \\ (x + 4)(2x - 15) &= 0 \\ x &= -4, \frac{15}{2} \end{aligned}$$

$$\begin{aligned} \text{II. } 3y^2 + 13y + 4 &= 0 \\ 3y^2 + 12y + y + 4 &= 0 \\ 3y(y + 4) + 1(y + 4) &= 0 \\ (3y + 1)(y + 4) &= 0 \\ y &= -\frac{1}{3}, -4 \end{aligned}$$

No relation between x and y

**S49. Ans.(e)****Sol.**

$$\begin{aligned} \text{I. } x^2 - 17x - 84 &= 0 \\ x^2 + 4x - 21x - 84 &= 0 \\ (x + 4)(x - 21) &= 0 \\ x &= -4, 21 \end{aligned}$$

$$\begin{aligned} \text{II. } y^2 + 4y - 117 &= 0 \\ y^2 - 9y + 13y - 117 &= 0 \\ (y - 9)(y + 13) &= 0 \\ y &= 9, -13 \end{aligned}$$

No relation between x and y

**S50. Ans.(d)****Sol.**

$$\begin{aligned} \text{I. } x^2 &= 81 \\ x &= \pm 9 \end{aligned}$$

$$\begin{aligned} \text{II. } (y - 9)^2 &= 0 \\ y &= 9 \\ \text{Clearly, } x &\leq y \end{aligned}$$

**S51. Ans.(d)****Sol.** total population of city A = 300 + 400 = 700

Total population of city D = 450 + 550 = 1000

$$\text{Required \%} = \frac{1000 - 700}{1000} \times 100 = 30\% \text{ less}$$

**S52. Ans.(a)****Sol.** total graduate population =  $\frac{70}{100} \times (300 + 400) = 490$ Female graduate population =  $\frac{4}{7} \times 490 = 280$ 

Female population who is not graduate = 400 - 280 = 120

**S53. Ans.(e)**

$$\text{Sol. required average} = \frac{300+550+500+450+350}{5} = \frac{2150}{5} = 430$$

**S54. Ans.(b)**

$$\text{Sol. required \%} = \frac{350}{400} \times 100 = 87.5\%$$

**S55. Ans.(d)****Sol.**

Postgraduate population in city B = 300 + 400 = 700

Postgraduate population in city C =  $\frac{8}{7} \times 700 = 800$ 

Required ratio = (1000 - 700) : (900 - 800) = 300 : 100 = 3 : 1

**S56. Ans.(b)****Sol.** when X liter milk is taken out

Quantity of milk left = (240-X) lit

Quantity of water = X lit

When 20% of mixture taken out

Remaining quantity of milk =  $\frac{80}{100} \times (240 - X) = (192 - 0.8X)$  litRemaining quantity of water =  $\frac{80}{100} \times X + \frac{20}{100} \times 240 = (0.8X + 48)$  lit

ATQ, (192 - 0.8X) - (0.8X + 48) = 128

$$16 = 1.6X$$

$$X = 10$$

**S57. Ans.(c)****Sol.**

	Time (days)	Work (units)	Efficiency (units/day)
A	36	144	4
B	48		3

Work completed by A and B in mentioned days =  $\frac{1}{3} \times 144 = 48$  unitsATQ,  $4x + 3(x + 2) = 48$ 

$$x = 6$$

**S58. Ans.(a)****Sol.** let cost price be Rs. 100xMarked price =  $\frac{140}{100} \times 100x = \text{Rs } 140x$ 

Selling price = Rs (140x - 224)

Selling price after tax =  $\frac{110}{100} \times (140x - 224) = \text{Rs } (154x - 246.4)$ ATQ,  $100x + 158.6 = 154x - 246.4$ 

$$x = 7.5$$

Cost price of article =  $100x = \text{Rs } 750$

**S59. Ans.(b)****Sol.**Let period of investment of Pinki and Rinki be  $2x$  and  $3x$  units respectively

Ratio of profit share

Pinki	:	Rinki
$6000 \times 2x$		$9000 \times 3x$
4		9

Profit share of Pinki=Rs 20,000

**S60. Ans (c)****Sol.**

ATQ

$$\frac{x}{40} - \frac{x+20}{60} = 2$$

$$x = 280 \text{ km}$$

$$\text{Required time} = \frac{320}{40} = 8 \text{ hours}$$

**S61. Ans.(c)****Sol.**

$$111.01 + 41.23 + (4.96)^2 + (2.09)^2 = ?$$

$$111 + 41 + 5^2 + 2^2 = ?$$

$$? = 152 + 25 + 4 = 181$$

**S62. Ans.(a)****Sol.**

$$109.07\sqrt{?} - \frac{61}{21.02} \times ? = 47.96\sqrt{?}$$

$$109\sqrt{?} - 48\sqrt{?} \approx \frac{61}{21} \times ?$$

$$61\sqrt{?} = \frac{61}{21} \times ?$$

$$? = 441$$

**S63. Ans.(d)****Sol.**

$$1332.89 + 171.928 + 17.01 + ?^2 = 1690.67$$

$$1333 + 172 + 17 - 1691 \approx -?^2$$

$$?^2 = 169$$

$$? = 13$$

**S64. Ans.(b)****Sol.**

$$150.09\% \text{ of } 20 + \frac{322.9}{17.02} + \sqrt{?} = (8.96)^2$$

$$30 + 19 + \sqrt{?} = 81$$

$$? = 1024$$

**S65. Ans.(b)****Sol.**

$$56.08\% \text{ of } 149.92 + \sqrt{28.02 \times 6.98} - 11\frac{1}{9}\% \text{ of } 998.9 = ?$$

$$56\% \text{ of } 150 + \sqrt{28 \times 7} - \frac{1}{9} \times 999 \approx ?$$

$$84 + 14 - 111 = -13$$

**Solutions (66-70):-**

Let number of girls in hostel B=100x

Then number of boys in hostel B=200x

Number of girls in hostel A= 130x

Number of boys in hostel C=120+100=220

Number of girls in hostel C=1000-220=780

Total number of girls in hostel A and that of in hostel D=446

Number of girls in hostel D=(446-130x)

Number of boys in hostel D=302

ATQ

$200x-302=98$

$x=2$

Hostels	Boys	Girls
A	120	260
B	400	200
C	220	780
D	302	186

**S66.** Ans (b)

**Sol.** Required percent= $\frac{(302-186)}{(400-200)} \times 100 = 58\%$

**S67.** Ans (a)

**Sol.** Required difference= $(302 + 186) - (120 + 260) = 108$

**S68.** Ans (a)

**Sol.** Required ratio= $\frac{600}{1000} = \frac{3}{5}$

**S69.** Ans (d)

**Sol.**

Required average= $\frac{100+380+200+282}{4} = 240.5$

**S70.** Ans (b)

**Sol.** Total number of boys in hostel A and that of girls in hostel C=900

Required %= $\frac{900-400}{400} \times 100 = 125\%$



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