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Solutions

S66. Ans.(d)

Sol. Required % = $\frac{120+240}{160+240} \times 100 = \frac{360}{400} \times 100 = 90\%$

S67. Ans.(a)

Sol. Average number of Women working in 2014, 2015 and 2016 together

= $\frac{1}{3} [240 + 360 + 300] = \frac{900}{3} = 300$

Average number of Men working in 2011, 2014 and 2016 together = $\frac{1}{3} [80 + 160 + 360] = \frac{600}{3} = 200$

Required difference = $300 - 200 = 100$

S68. Ans.(c)

Sol. Number of Men working in 2017 = $\frac{115}{100} \times 300 = 345$

Number of Women working in 2017 = $\frac{60}{100} \times 240 = 144$

Total number of labors working in 2017 = $345 + 144 = 489$

S69. Ans.(b)

Sol. Required Ratio = $\frac{(120+180)+(240+120)}{(300+360)+(360+300)} = \frac{300+360}{660+660} = \frac{660}{1320} = \frac{1}{2}$

S70. Ans.(e)

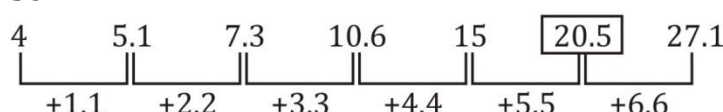
Sol. Total number of Men working in all six years = $80 + 120 + 240 + 160 + 300 + 360 = 1260$

Total number of Women working in all six years = $260 + 180 + 120 + 240 + 360 + 300 = 1460$

Required difference = $1460 - 1260 = 200$

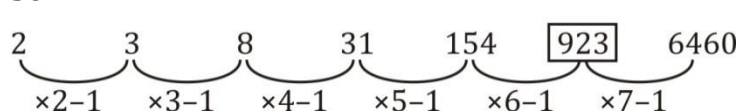
S71. Ans.(d)

Sol.



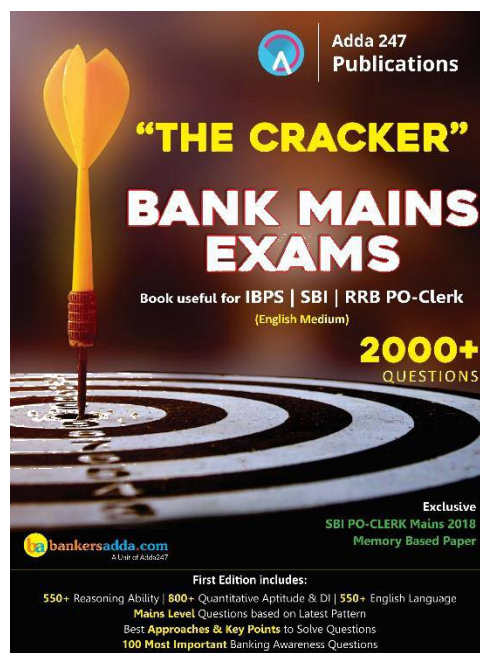
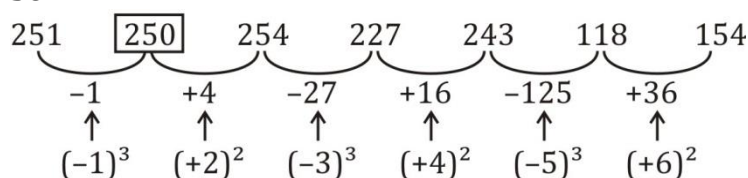
S72. Ans.(a)

Sol.



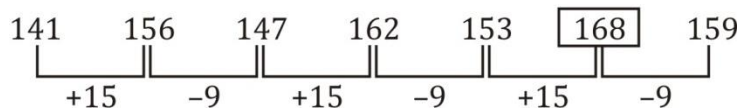
S73. Ans.(b)

Sol.



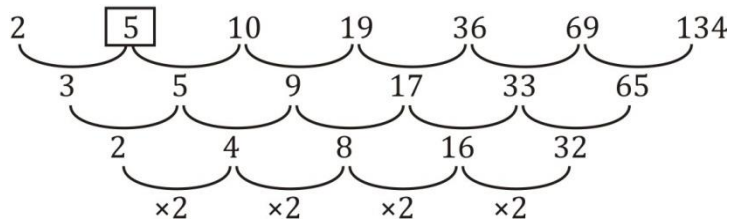
S74. Ans.(d)

Sol.



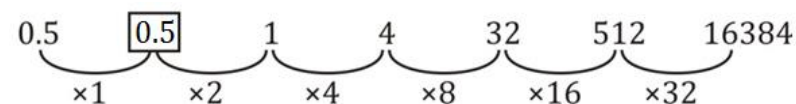
S75. Ans.(c)

Sol.



S76. Ans.(b)

Sol.



S77. Ans.(d)

Sol. Let present age of A and B be $16x$ yr and $7x$ yr respectively

ATQ

$$\frac{16x + 12}{7x + 12} = \frac{2}{1}$$

$$\Rightarrow 2x = 12$$

$$\Rightarrow x = 6$$

Present age of A = 96 yr

Present age of B = 42 yr

S78. Ans.(b)

Sol. Sum = $\frac{1950 \times 100}{2 \times 15} = \text{Rs } 6500$

CI in 2 years at 10% per annum = $10 + 10 + \frac{10 \times 10}{100} = 21\%$

ATQ

$$(6500 + x) \times \frac{21}{100} = 1680$$

$$\Rightarrow (6500 + x) = 8000$$

$$x = \text{Rs } 1500$$

S79. Ans.(b)

Sol. Total weight of students = $47 \frac{7}{15} (15 + 30) = 2136$ kg

Total weight of boys = $15 \times 58 = 870$ kg

Average weight of girls = $\left(\frac{2136 - 870}{30} \right)$ kg = 42.2 kg ≈ 42 kg

S80. Ans.(a)

$$\text{Sol. Ram's cost price} = \text{M. R. P.} \times \frac{80}{100}$$

$$\text{Ramesh C. P.} = \text{M. R. P.} \times \frac{80}{100} \times \frac{90}{100}$$

$$\text{Ranjan C. P.} = \text{M. R. P.} \times \frac{80}{100} \times \frac{90}{100} \times \frac{120}{100} = 1,29,600$$

$$\Rightarrow \text{M.R.P.} = \text{Rs. } 1,50,000$$

Solution (81-85):

Let, Males and females who use their coupons in Haircutting be $13x$ and $7x$ respectively.

$$\Rightarrow \text{Males who use their coupons in Pedicure} = 7x + 72$$

$$\text{Then Females who use their coupons in Pedicure} = 450 - 13x - 7x - 7x - 72 = 378 - 27x$$

Pedicure		Haircutting	
Males	Females	Males	Females
$7x+72$	$378-27x$	$13x$	$7x$

ATQ,

$$7x + 72 + 13x - (7x + 378 - 27x) = 174$$

$$40x - 306 = 174$$

$$40x = 480$$

$$x = 12$$

Pedicure		Haircutting	
Males	Females	Males	Females
156	54	156	84

S81. Ans.(b)

$$\text{Sol. Required \%} = \frac{156}{156} \times 100 = 100\%$$

S82. Ans.(e)

$$\text{Sol. Required Ratio} = \frac{156+54}{156+84} = \frac{210}{240} = \frac{7}{8}$$

S83. Ans.(c)

$$\text{Sol. Required difference} = 84 - 54 = 30$$

S84. Ans.(d)

Sol. Number of males who use their coupons in Haircutting which doesn't belongs to city A

$$= 156 \times \frac{75}{100} = 117$$

S85. Ans.(a)

$$\text{Sol. Males who use their coupons in Spa} = 156 \times \frac{5}{4} = 195$$

$$\text{Females who use their coupons in Spa} = 84 \times \frac{11}{6} = 154$$

$$\text{Total number of people who use their coupon in Spa} = 195 + 154 = 349$$



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S86. Ans.(b)**Sol.**

(i) $2x^2 + 9x + 9 = 0$

$2x^2 + (6 + 3)x + 9 = 0$

$2x(x + 3) + 3(x + 3) = 0$

$x = \frac{-3}{2}, -3$

(ii) $15y^2 + 16y + 4 = 0$

$15y^2 + 10y + 6y + 4 = 0$

$5y(3y + 2) + 2(3y + 2) = 0$

$y = \frac{-2}{5}, \frac{-2}{3}$

$x < y$

S87. Ans.(c)**Sol.**

(i) $2x^3 = 16$

$x^3 = 8$

$x = 2$

(ii) $2y^2 - 9y + 10 = 0$

$2y^2 - (5 + 4)y + 10 = 0$

$2y^2 - 5y - 4y + 10 = 0$

$y(2y - 5) - 2(2y - 5) = 0$

$y = 2, \frac{5}{2}$

$x \leq y$

S88. Ans.(e)**Sol.**

(i) $6x^2 - 11x + 4 = 0$

$6x^2 - (8 + 3)x + 4 = 0$

$6x^2 - 8x - 3x + 4 = 0$

$2x(3x - 4) - 1(3x - 4) = 0$

$x = \frac{1}{2}, \frac{4}{3}$

(ii) $3y^2 - 5y + 2 = 0$

$3y^2 - (3 + 2)y + 2 = 0$

$3y^2 - 3y - 2y + 2 = 0$

$3y(y - 1) - 2(y - 1) = 0$

$y = \frac{2}{3}, 1$

No relation between x and y



S89. Ans.(a)**Sol.**

(i) $3x^2 + 11x + 10 = 0$

$3x^2 + 6x + 5x + 10 = 0$

$3x(x + 2) + 5(x + 2) = 0$

$x = -2, -\frac{5}{3}$

(ii) $2y^2 + 11y + 14 = 0$

$2y^2 + 7y + 4y + 14 = 0$

$y(2y + 7) + 2(2y + 7) = 0$

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

$x \geq y$

S90. Ans.(b)**Sol.**

(i) $12x^2 + 8x + 3x + 2 = 0$

$4x(3x + 2) + 1(3x + 2) = 0$

$x = -\frac{2}{3}, -\frac{1}{4}$

(ii) $12y^2 + 7y + 1 = 0$

$12y^2 + 4y + 3y + 1 = 0$

$4y(3y + 1) + 1(3y + 1) = 0$

$y = -\frac{1}{3}, -\frac{1}{4}$

No relation between x and y

S91. Ans.(b)**Sol.**

(i) $21x^2 + 10x + 1 = 0$

$21x^2 + 7x + 3x + 1 = 0$

$7x(3x + 1) + 1(3x + 1) = 0$

$x = -\frac{1}{3}, -\frac{1}{7}$

(ii) $24y^2 + 26y + 5 = 0$

$24y^2 + (20 + 6)y + 5 = 0$

$24y^2 + 20y + 6y + 5 = 0$

$4y(6y + 5) + 1(6y + 5) = 0$

$y = -\frac{5}{6}, -\frac{1}{4}$

No relation between x and y

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S92. Ans.(d)

Sol. B can complete work alone in $= 20 \times \frac{4}{5} = 16$ days

Let C alone can complete work in 'x' days

ATQ,

$$\frac{6}{16} + \frac{15}{x} = 1$$

$$\Rightarrow \frac{15}{x} = \frac{10}{16}$$

$$\Rightarrow x = \frac{15 \times 16}{10} = 24 \text{ days}$$

S93. Ans.(b)

Sol. Let distance between P to Q and Q to R be 'x' and 'y' respectively.

ATQ,

$$75 = \frac{200}{\frac{x}{90} + \frac{y}{60}}$$

$$60x + 90y = 200 \times 90 \times 60 \times \frac{1}{75}$$

$$2x + 3y = 480$$

$$\text{And } x + y = 200$$

$$\Rightarrow x = 120\text{km and } y = 80\text{km}$$

S94. Ans.(e)

Sol. Let wine and water are $= 5x : x$

$$\text{Now, } \frac{5x}{x+5} = \frac{5}{2} \Rightarrow 10x = 5x + 25$$

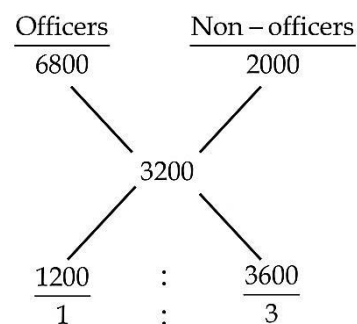
$$x = 5$$

$$\Rightarrow \begin{array}{c|c} 25 : 5 & 25 : 10 \\ \hline \text{Before mixture} & \text{After mixture} \end{array}$$

$$\text{Quantity of wine} = 25\ell$$

S95. Ans.(c)

Sol.



$$\text{No. of non-officers} = \frac{3}{1} \times 5 = 15$$

S96. Ans.(c)

Sol. Total books sold by store A = $3500 \times \frac{20}{100} = 700$

Total plain books sold by store A

$$= 2000 \times \frac{30}{100} = 600$$

Total lined books sold by store A = $700 - 600 = 100$

Total books sold by store B = $5000 \times \frac{40}{100} = 2000$

Plain books sold by store B = $3000 \times \frac{40}{100} = 1200$

Total lined books sold by store B = $2000 - 1200 = 800$

Required % = $\frac{900}{3500} \times 100 = \frac{180}{7} \% = 25\frac{5}{7} \%$

S97. Ans.(a)

Sol. Average of total books sold by stores B and C

$$= \frac{1}{2} \left(50 \times \frac{40}{100} \times 100 + 45 \times \frac{30}{100} \times 100 \right)$$

$$= 1675$$

Unsold books of store A = $3500 \times \frac{80}{100} = 2800$

Required difference = $2800 - 1675 = 1125$

S98. Ans.(d)

Sol. Total books sold by store C = $45 \times 100 \times \frac{30}{100} = 1350$

Plain books sold by C = $1350 \times \frac{5}{9} = 750$

Plain books sold by store B = $\frac{3}{5} \times 5000 \times \frac{40}{100} = 1200$

Required number of books = $1200 + 750 = 1950$

S99. Ans.(b)

Sol. Unsold books of store A = $3500 \times \frac{80}{100} = 2800$

Unsold books of store B and C together

$$= 5000 \times \frac{60}{100} + 4500 \times \frac{70}{100}$$

$$= 6150$$

Required % = $\frac{6150-2800}{6150} \times 100 = 54\%$

S100. Ans.(e)

Sol. Number of total books sold by store B

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

Number of lined books sold

$$= 2000 \times \frac{60}{100} = 1200$$

Total amount earned = Rs. $(800 \times 250 + 1200 \times 175) = \text{Rs. } 4.1 \text{ lac}$

