

BOOKS



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Solutions

S1. Ans.(b)

Sol. Total no. of Moto & MI mobiles manufactured together in 2012

$$= \frac{150}{60} \times 100 + \frac{160}{40} \times 100$$
$$= 250 + 400 = 650$$

Total no. of Moto & MI mobiles manufactured together in 2013

$$= \frac{140}{62.5} \times 100 + \frac{170}{85} \times 100$$
$$= 224 + 200 = 424$$

$$\text{Required difference} = 650 - 424 = 226$$

S2. Ans.(a)

Sol. Defective Appo mobiles in 2013 = $\frac{20}{100} \times (140 + 150 + 120 + 170 + 80)$

$$= \frac{1}{5} \times 660 = 132$$

Unsold Nokia mobiles in 2012 = $\frac{50}{25} \times 75 = 150$

$$\text{Required percentage} = \frac{132}{150} \times 100 = 88\%$$

S3. Ans.(c)

Sol. Total Nokia mobiles manufactured = $\frac{50}{25} \times 100 = 200$

Total Jio mobiles manufactured in 2012 = $1000 - 200 = 800$

Unsold Jio mobiles in 2012 = $\frac{140}{100} \times \frac{80}{40} \times 60 = 168$

Sold Jio mobiles in 2012 = 632

$$\text{Required average} = \frac{632+140}{2} = 386$$

S4. Ans.(e)

Sol. Total manufactured mobiles of company MI & Vivo together in

$$2012 = \frac{160}{40} \times 100 + \frac{120}{40} \times 100$$
$$= 400 + 300 = 700$$

Total mobiles sold in year 2013 = $140 + 150 + 120 + 170 + 80$
= 660

$$\text{Required percentage} = \frac{700 - 660}{660} \times 100$$
$$= 6 \frac{2}{33} \%$$

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S5. Ans.(d)

$$\text{Sol. Total unsold Vivo mobiles} = \frac{120}{40} \times 60 + \frac{150}{50} \times 50$$

$$= 180 + 150 = 330$$

$$\text{Defective Vivo mobiles} = 60 \times \frac{330}{100} = 198$$

$$\text{Defective Vivo mobiles in 2012} = 198 \times \frac{1}{3} = 66$$

$$\text{Required total} = 66 + \frac{150}{60} \times 40 + \frac{140}{62.5} \times 37.5$$

$$= 66 + 100 + 84 = 250$$

S6. Ans.(d)

Sol. Pattern of series –

$$18 \times 0.5 - 3 = 6$$

$$6 \times 1 - 4 = 2$$

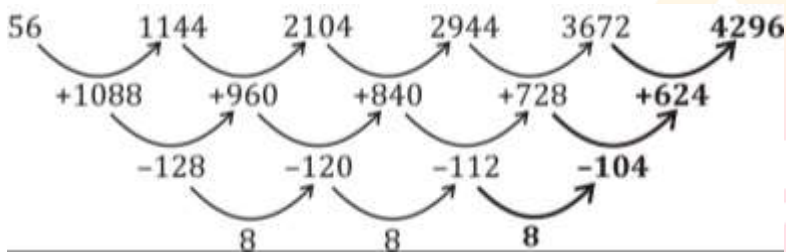
$$2 \times 1.5 - 5 = -2$$

$$-2 \times 2 - 6 = -10$$

$$? = -10 \times 2.5 - 7 = -32$$

S7. Ans.(d)

Sol.

**S8. Ans.(a)**

Sol.

$$21 + (12^3 + 1) = 1750$$

$$1750 + (10^3 + 2) = 2752$$

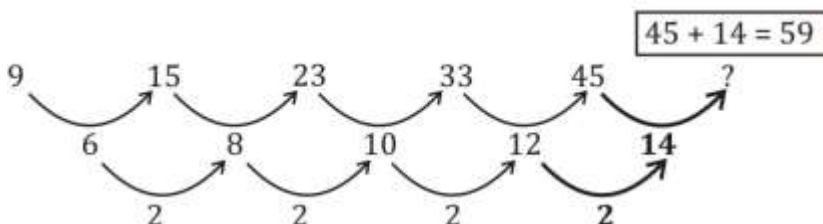
$$2752 + (8^3 + 3) = 3267$$

$$3267 + (6^3 + 4) = 3487$$

$$? = 3487 + (4^3 + 5) = 3556$$

S9. Ans.(b)

Sol.



S10. Ans.(c)

Sol. $141 + 7 \times 8 = 197$
 $197 + 8 \times 9 = 269$
 $269 + 9 \times 10 = 359$
 $359 + 10 \times 11 = 469$
 $? = 469 + 11 \times 12 = 601$

S11. Ans.(c)

Sol. Number of sweets distributed on Saturday = 216
 Given, ratio between sweets got by male to female = 5 : 7
 $12x = 216$
 $x = 18$
 So, Number of female = $\frac{7x}{3}$
 $= \frac{7 \times 18}{3} = 42$
 Number of male who got sweets = $\frac{5x}{2} = \frac{5 \times 18}{2} = 45$
 Total number of male in society = $45 + 3 = 48$
 Required difference = $48 - 42 = 6$

S12. Ans.(c)

Sol. Let the radius of two hemisphere be $2x$ & $3x$

ATQ,

$$\frac{2}{3}\pi(3x)^3 - \frac{2}{3}\pi(2x)^3 = \frac{836}{21}\text{cm}^3 \quad [\because \text{volume of hemisphere} = \frac{2}{3}\pi r^3]$$

$$\Rightarrow \frac{2}{3}\pi[19x^3] = \frac{836}{21}$$

$$\Rightarrow x = 1$$

\therefore radius are 2 cm & 3 cm.

Now,

$$\left[\frac{2}{3}\pi(2)^3 + \frac{2}{3}\pi(3)^3\right] + \left[\frac{74}{3}\pi\text{cm}^3\right] = \pi R^2 H$$

$$\Rightarrow \frac{2}{3}\pi[8 + 27] + \frac{2}{3}\pi 37 = \pi R^2 H$$

$$\Rightarrow \frac{2}{3}\pi[35 + 37] = \pi R^2 H$$

$$\Rightarrow R^2 H = 48$$

$$\Rightarrow R : H = 4 : 3 \text{ (given)}$$

Let $R = 4a$, $H = 3a$

$$\Rightarrow 16a^2 \cdot 3a = 48$$

$$a = 1$$

$$\therefore R = 4, H = 3$$

T.S.A. of cylinder = $2\pi R(R + H)$

$$= 2 \times \frac{22}{7} \times 4(7)$$

$$= 176 \text{ cm}^2$$

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S13. Ans.(d)

Sol. Let total chocolate in box be $10c$. Munch chocolate be a and kit-kat chocolate be b .

$$\text{Probability of selecting Munch chocolate} = \frac{a}{10c} = \frac{3}{10}$$

$$a = 3c \quad \dots(i)$$

$$\text{Probability of selecting Kit Kat chocolate} = \frac{b}{10c} = \frac{2}{5}$$

$$b = 4c \quad \dots(ii)$$

ATQ,

$$a + b + 6 = 10c$$

$$\Rightarrow 3c + 4c + 6 = 10c$$

$$\Rightarrow c = 2$$

So, total chocolate = 20

$$\text{Required probability} = 1 - \frac{{}^6C_3 + {}^8C_3 + {}^6C_3}{{}^{20}C_3}$$

$$= 1 - \frac{(20 + 56 + 20)}{1140}$$

$$= \frac{1044}{1140} = \frac{87}{95}$$

S14. Ans.(a)

Sol. Let Sameer invested = $100x$ Rs.

Veer investment = $150x$ Rs.

$$\text{Raj investment} = 150x \times \frac{75}{100}$$

$$= 112.5x \text{ Rs.}$$

Profit ratio of Veer, Sameer & Raj = $150x : 100x : 112.5x$

$$= 12 : 8 : 9$$

Let total profit be $29P$ Rs.

$$\text{Given, } 12P - 8P = 14400 \text{ Rs.}$$

$$4P = 14400$$

$$P = 3600 \text{ Rs.}$$

$$\text{Total profit} = 29 \times 3600 = 104400 \text{ Rs.}$$

S15. Ans.(e)

Sol.

	<u>Days</u>	<u>Total work</u>	<u>efficiency</u>
A	18	72	4 unit/daily
B	24		3 unit/daily
C	36		(-2) unit/daily

ATQ—

$$(A + B)x + (A + B - C) \left(\frac{5x + 24}{5} \right) = 72$$

$$7x + 5 \left(\frac{5x + 24}{5} \right) = 72$$

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$$12x = 48$$

$$x = 4$$

(A + B + C) work for

$$= 4 + 4\frac{4}{5}$$

$$= 8\frac{4}{5} \text{ days}$$

S16. Ans.(b)

Sol.

Q	S	P
32000	24000	$24000 \times \frac{75}{100}$
16	12	9

Let total profit = 100X

$$\text{Q extra profit share} = 100X \times \frac{12}{100} = 12X$$

$$\text{S extra profit share} = 100X \times \frac{15}{100} = 15X$$

$$\text{Remaining profit} = 100X - (12X + 15X) = 73X$$

$$\text{Share of P} = \frac{73X}{(16 + 12 + 9)} \times 9 = 65700$$

$$= \frac{657X}{37} = 65700$$

$$X = \frac{65700 \times 37}{657} = 3700$$

$$\text{Total profit} = 3700 \times 100 = 370000 \text{ Rs.}$$

S17. Ans.(e)

Sol. Ratio of investment by Q & R = 4 : 3 $\Rightarrow 4x : 3x$

Ratio of time period = 5 : 3 $\Rightarrow 5y : 3y$

Ratio of profit share between Q & R

$$= 4x \times 5y : 3x \times 3y$$

$$= 20xy : 9xy$$

$$= 20a : 9a \text{ [say]}$$

ATQ,

$$20a - 9a = 100\%$$

$$a = \frac{10010}{11} = 910$$

$$\text{Now } 35\% \text{ profit} = 29a = 29 \times 910$$

$$65\% \text{ profit} = 29 \times 910 \times \frac{65}{35}$$

$$\frac{65}{2}\% \text{ profit} = \frac{29 \times 910 \times 13}{2 \times 7} = 24505$$

$$\text{R's total profit share} = 24505 + 9a$$

$$= 24505 + 8190 = 32695$$

S18. Ans.(a)**Sol.** Lets S joined the business after X months —

According to question

$$\frac{32000 \times 36}{24000 \times (36 - X)} = \frac{3}{2}$$

$$x = \frac{36}{9} = 4 \text{ months}$$

S19. Ans.(b)**Sol.** Profit share of R = 30500 - 24300 = 16200 Rs.

Lets R invested X Rs. for 12 months

ATQ -

$$\frac{81000 \times 9}{X \times 12} = \frac{24300}{16200}$$

$$= \frac{81000 \times 3}{4X} = \frac{3}{2}$$

$$X = 40500 \text{ Rs.}$$

S20. Ans.(c)**Sol.**

$$Q : R = 8 : 9$$

$$R : S = 3 : 2$$

$$Q : R : S = 8 : 9 : 6$$

$$\text{Total profit} = 37030$$

Q's share

$$\frac{8}{23} \times 37030 = 12880$$

R's share

$$\frac{9}{23} \times 37030 = 14490$$

S's share

$$\frac{6}{23} \times 37030 = 9660$$

S21. Ans.(c)**Sol.**

$$36.01^3 \times 4096^{\frac{1}{2}} \times 37.99^2 \div (9^3 \times 75.98^2) = 4^?$$

$$\text{or, } 4^? = \frac{36^3 \times \sqrt{4096} \times 38^2}{9^3 \times 76^2}$$

$$= \frac{4^3 \times 9^3 \times 4^3 \times 38 \times 38}{9^3 \times 76 \times 76} = \frac{4^3 \times 4^3}{2 \times 2}$$

$$\text{or, } 4^? \approx 4^3 \times 4^2 = 4^5$$

$$\therefore ? \approx 5$$



S22. Ans.(d)

$$\text{Sol. } (4809.01 + 9615.96 + 14425.03) \div 4.98 + 6.02 = (?)^2$$

$$\text{or, } (?)^2 \approx \frac{4809 + 9616 + 14425}{5} + 6$$

$$= \frac{28850}{5} + 6 = 5770 + 6$$

$$\text{Or, } (?)^2 \approx 5776$$

$$\therefore ? \approx \sqrt{5776} = 76$$

S23. Ans.(a)**Sol.**

$$\frac{4}{15} \text{ of } 393 + \frac{7}{12} \text{ of } 478 = ? \times (1.99 + 1.01)$$

$$\text{or, } ? \times 3 \approx \frac{4}{15} \times 393 + \frac{7}{12} \times 478$$

$$\text{or, } ? \times 3 \approx \frac{4}{15} \times 390 + \frac{7}{12} \times 480$$

$$\text{or, } ? \times 3 \approx 104 + 280$$

$$\text{or, } ? \approx \frac{384}{3}$$

$$\therefore ? \approx 128$$

S24. Ans.(c)**Sol.**

$$? \approx \sqrt{2809} \div 8 \times (12)^2 + 46$$

$$\text{or, } ? \approx \frac{53}{8} \times (12)^2 + 46$$

$$\text{or, } ? \approx 954 + 46$$

$$\therefore ? \approx 1000$$

S25. Ans.(b)**Sol.**

$$(35\% \text{ of } 74000) \div ? = (123\% \text{ of } 13.02)^2 \times 2.01$$

$$\text{or, } \left(\frac{35 \times 74000}{100} \right) \div ? = \left(\frac{123 \times 13}{100} \right)^2 \times 2$$

$$\text{or, } \frac{25900}{?} \approx (15.99)^2 \times 2$$

$$\text{or, } \frac{25900}{?} \approx 16 \times 16 \times 2$$

$$\therefore ? \approx \frac{25900}{16 \times 16 \times 2} = 50.58 \approx 50$$

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S26. Ans.(b)**Sol.** $(X+4)$ men can complete work in $2X$ days \Rightarrow 1 man can complete same work in $2X(X+4)$ days $(X+12)$ women can complete work in $(X+8)$ days \Rightarrow 1 woman can complete same work in $(X+8)(X+12)$ days

Now ratio of efficiency of men to women is 5 : 4

 \Rightarrow Ratio of days taken by men to women is 4 : 5

$$\text{So, } \frac{4}{5} = \frac{2X(X+4)}{(X+8)(X+12)}$$

$$\Rightarrow 2(X^2 + 20X + 96) = 5X(X + 4)$$

$$\Rightarrow 2X^2 + 40X + 192 = 5X^2 + 20X$$

$$\Rightarrow 3X^2 - 20X - 192 = 0$$

$$\Rightarrow 3X^2 - 36X + 16X - 192 = 0$$

$$\Rightarrow 3X(X - 12) + 16(X - 12) = 0$$

$$\Rightarrow (3X + 16)(X - 12) = 0$$

$$\Rightarrow X = 12, -\frac{16}{3}$$

12 men can complete work in $\frac{16 \times 24}{12} = 32$ days15 women can complete work in $\frac{24 \times 20}{15} = 32$ daysRequired time = $\frac{32 \times 32}{32+32} = 16$ days**S27. Ans.(c)****Sol.** Let Mark price of article is $300x$

S.P if he will give 20% discount = $300x \times \frac{80}{100} = 240x$

S.P if he will give $46\frac{2}{3}\%$ discount = $300x \times \frac{160}{300} = 160x$

ATQ,

$600 - 160x = 240x - 600$

$1200 = 400x$

Mark price of article = Rs. $\frac{1200}{400} \times 300 = \text{Rs. } 900$

S28. Ans.(b)**Sol.** Let the efficiency of C [is C units/days] total work is 100a Units

ATQ,

$\frac{7}{3}c \times 10 = 21a$

$\left[233\frac{1}{3}\% = \frac{7}{3}\right]$

$C = \frac{9a}{10} \text{ Units /day}$

Also B is $11\frac{1}{9}\%$ more efficient means

$$B = \frac{10}{9} \text{ of } C$$

$$B = \frac{10}{9} \times \frac{9a}{10} \text{ Units/day}$$

$$= a \text{ Units / day}$$

A which while working with half efficiency total half time.

$$\therefore A : B = 4 : 1 \text{ [efficiency ratio]}$$

$$\text{Efficiency of A} = 4a$$

$$\text{Work done by then together is } 4a + a = 5a/\text{day}$$

$$\text{Time take to complete } 50 a \text{ Units} = \frac{50a}{5a} = 10 \text{ days}$$

S29. Ans.(d)

Sol. Let total profit = x

$$\text{A's and B's share according to their investment} = 9000 \times 12 : 16000 \times 9$$

$$= 3 : 4$$

ATQ,

$$\frac{35x}{100} + \frac{3x}{7} \times \frac{65}{100} = 52800$$

$$\Rightarrow \frac{88x}{140} = 52800$$

$$\Rightarrow x = \frac{52800 \times 140}{88}$$

$$x = 84,000$$

S30. Ans.(d)

Sol. Let the present age of A, B, C and D is A, B, C and D respectively.

$$\therefore A + B + C + D = 27.5 \times 4$$

$$(A + D) + (B + C) = 110 \text{ years ... (i)}$$

Also, from the condition, 5 year ago, average age of A and D is greater by 1 than B & C.

We can say that

$$\frac{A+D}{2} - \frac{(B+C)}{2} = 1$$

$$\Rightarrow (A + D) - (B + C) = 2 \text{ ... (ii)}$$

Solving (i) & (ii) we get $B + C = 54$ years.

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