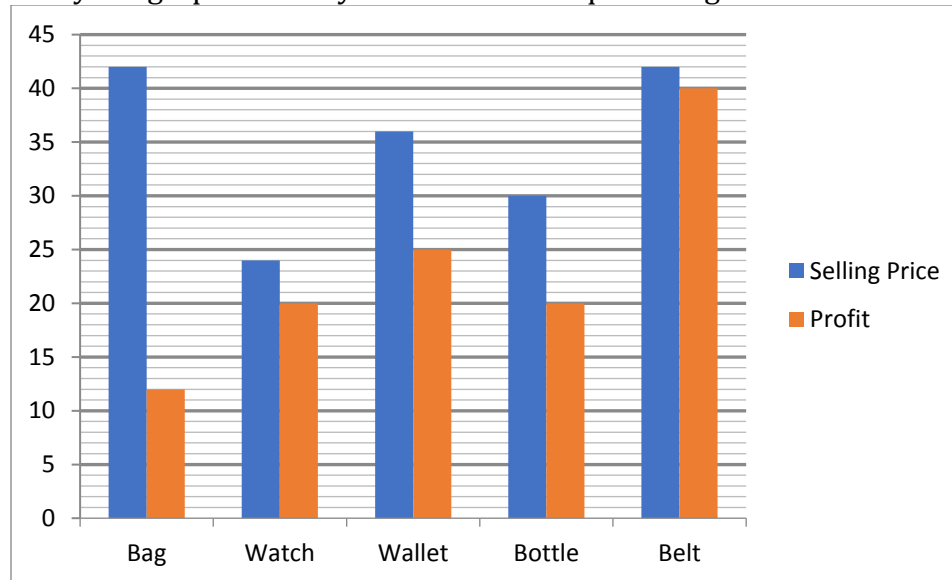


Quiz Date: 10th May 2020

Directions (1-5): Bar- graph given below shows the selling price (in rupees) of a single item of five products by a shopkeeper and also the profit percent of a single item of each product is given.

Study the graph carefully and answer the question given below.



Q1. If Roly purchased 10 bags and 6 bottles from the shopkeeper then find the profit made by the shopkeeper on the given number of bags and bottles?

(a) None of these

(b) $12\frac{1}{2}\%$

(c) 14%

(d) $16\frac{2}{3}\%$

(e) $14\frac{2}{7}\%$

Q2. If Abhi purchased 4 wallets and sold two of them at 25% loss and rest at 12.5% profit. Then find the net profit/loss obtained by him.

(a) Rs. 14

(b) Rs. 9

(c) Rs. 6

(d) Rs. 12

(e) none of these

Q3. What is the average of cost price of all five items if single item is considered?

(a) 28.26

(b) 23.25

(c) 32.28

(d) 18

(e) None of these

Q4. If shopkeeper also wants to sell 5 tiffin, the cost price of single tiffin is same as cost price of single watch and made a total profit of 50%. Then find the average of selling price of single tiffin and cost price of single bottle?

(a) 27.5

(b) None of these

(c) 22.5

(d) 18

(e) 15

Q5. If Rahul and Prabhat made profit by selling 5 belts each whose ratio of selling price is 3 : 2 and cost price of one belt is Rs. 30. If profit made by both is equal to profit made by shopkeeper on selling 5 bags. Then find the difference of selling price of Rahul and Prabhat?

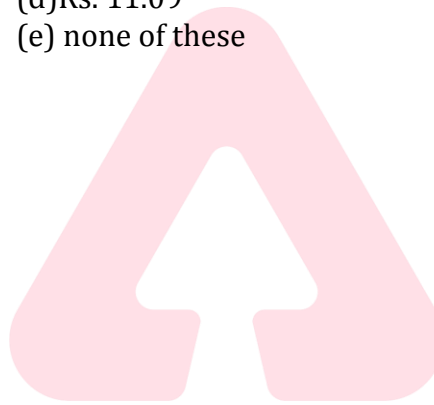
(a) Rs. 12.9

(b) Rs. 16.4

(c) Rs. 8.06

(d) Rs. 11.09

(e) none of these



Direction (6-10): In the following questions, two equations numbered I and II are given. You have to solve both the equations and give answers among the following options.

(a) if $x > y$

(b) if $x \geq y$

(c) if $x < y$

(d) if $x \leq y$

(e) if $x = y$ or the relationship cannot be established.

Q6. I. $35 = \left(\frac{73}{x} - \frac{36}{x^2}\right)$

II. $\left(\frac{14y}{33} + \frac{1}{y}\right) = \frac{131}{99}$

Q7. I. $20x^2 - x - 12 = 0$

II. $8y^2 + 38y + 35 = 0$

Q8. I. $33x^2 - 49x + 18 = 0$

$$\text{II. } 55y^2 - 32y - 63 = 0$$

$$\text{Q9. I. } 4x^2 + 12x = 91$$

$$\text{II. } 4y^2 + 20y = 75$$

$$\text{Q10. I. } (y)^{\frac{3}{2}} + 3(y)^{\frac{1}{2}} - 54(y)^{\frac{-1}{2}} = 0$$

$$\text{II. } \left(\frac{x}{23} + \frac{1}{4}\right) = \frac{117}{92x}$$

Directions (11-15): Study pie chart and table carefully to answer the questions that follow. Pie chart shows percentage distribution of vehicles in four different cities

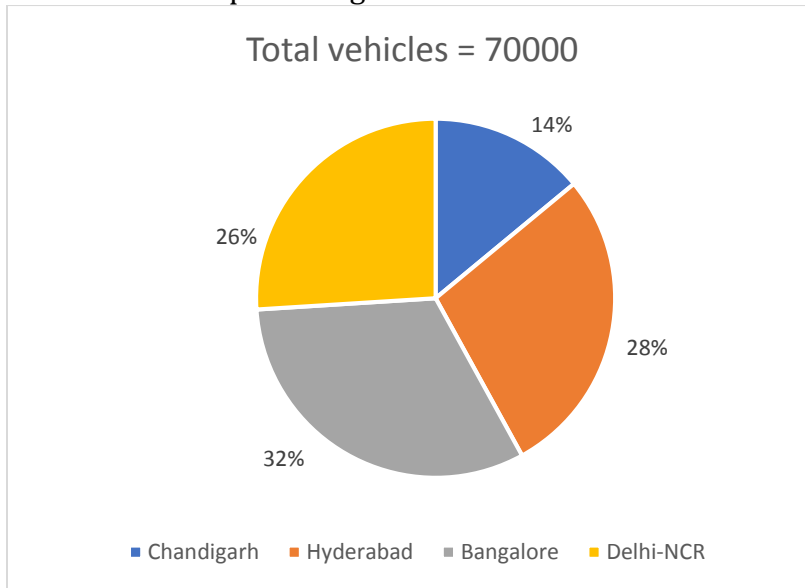


Table showing ratio between diesel and petrol engine vehicles which are distributed among four different Cities

States	Diesel engine vehicles : Petrol engine vehicles
Chandigarh	3 : 4
Hyderabad	5 : 9
Bangalore	5 : 3
Delhi-NCR	1 : 1

Q11. What is the difference between the number of diesel engine Vehicles in Hyderabad and the number of petrol engine Vehicles in Delhi-NCR ?

(a) 15900

(b) 2100

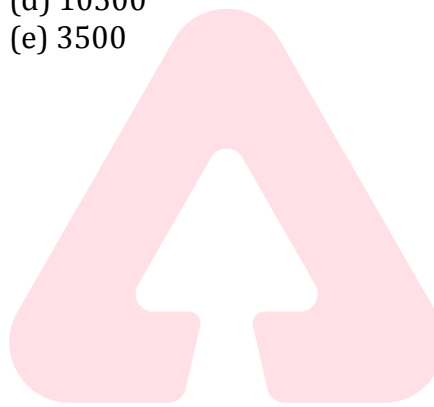
- (c) 2800
- (d) 3400
- (e) 16100

Q12. Number of petrol engine vehicles in Bangalore is what per cent more than the number of diesel engine vehicles in Chandigarh ?

- (a) 100%
- (b) 200%
- (c) 300%
- (d) 125%
- (e) 225%

Q13. If 25% of diesel engine vehicles in Bangalore are AC and remaining vehicles are non-AC, what is the number of diesel engine vehicles in Bangalore which are non-AC ?

- (a) 7500
- (b) 4500
- (c) 9500
- (d) 10500
- (e) 3500



Q14. What is the difference between the total number of vehicles in Bangalore and the number of petrol engine vehicles in Hyderabad ?

- (a) 9600
- (b) 10600
- (c) 11200
- (d) 10200
- (e) 9800

Q15. What is the average number of petrol engine vehicles in all cities together ?

- (a) 8675
- (b) 8925
- (c) 8975
- (d) 8625
- (e) 8875

Solutions

S1. Ans.(e)

Sol.

$$\text{Cost price of 10 bags} = 10 \times 42 \times \frac{100}{112} = 375$$

$$\text{Cost price of 6 bottles} = 6 \times 30 \times \frac{100}{120} = 150$$

$$\text{Selling price of 10 bags and 6 bottles} = 10 \times 42 + 6 \times 30 = 600$$

$$\text{Required percentage} = \frac{600 - 525}{525} \times 100 = 14\frac{2}{7}\%$$

S2. Ans.(b)

Sol.

$$\text{Cost price for Abhi for 2 wallet} = 72$$

$$\text{Selling price for Abhi for 2 wallet} = 72 \times \frac{75}{100} = 54$$

$$\text{Selling price for Abhi for rest two wallet} = 72 \times \frac{112.5}{100} = 81$$

$$\text{Total selling price} = 54 + 81 = 135$$

$$\text{Net loss} = 144 - 135$$

$$= \text{Rs. } 9$$

S3. Ans.(a)

Sol.

$$\begin{aligned} \text{Required average} &= \frac{1}{5} \left(\frac{42}{112} \times 100 + \frac{24}{120} \times 100 + \frac{36}{125} \times 100 + \frac{30}{120} \times 100 + \frac{42}{140} \times 100 \right) \\ &= \frac{1}{5} \times (37.5 + 20 + 28.8 + 25 + 30) = \frac{141.3}{5} = 28.26 \end{aligned}$$

S4. Ans.(a)

Sol.

$$\text{Cost price of a single bottle} = 30 \times \frac{100}{120} = 25$$

$$\text{Cost price of a single tiffin} = 24 \times \frac{100}{120} = 20$$

$$\text{Selling price of single tiffin} = 20 \times \frac{150}{100} = 30$$

$$\text{Required Average} = \frac{30+25}{2} = 27.5$$

S5. Ans.(a)

Sol.

$$\text{Let selling price of one belt for Rahul} = 3x$$

$$\text{And selling price of one belt for Prabhat} = 2x$$

$$\text{cost price of one belt} = 30$$

$$\text{profit made by shopkeeper on selling 5 bags} = 5 \times \left[42 - 42 \times \frac{100}{112} \right] = 22.5$$

ATQ

$$5 \times [(3x - 30) + (2x - 30)] = 22.5$$

$$\therefore x = 12.9$$

$$\text{So, difference of selling price of Rahul and Prabhat} = (3x - 2x) = 12.9$$

$$\therefore \text{Rs. } 12.9$$

S6. Ans.(d)

Sol.

$$I. 35 = \frac{73}{x} - \frac{36}{x^2}$$

$$\Rightarrow 35 = \frac{73x-36}{x^2}$$

$$\Rightarrow 35x^2 = 73x - 36$$

$$\Rightarrow 35x^2 - 73x + 36 = 0$$

$$\Rightarrow 35x^2 - 45x - 28x + 36 = 0$$

$$\Rightarrow 5x(7x - 9) - 4(7x - 9) = 0$$

$$\Rightarrow (7x - 9)(5x - 4) = 0$$

$$\Rightarrow x = \frac{9}{7}, \frac{4}{5}$$

$$II. \frac{14y}{33} + \frac{1}{y} = \frac{131}{99}$$

$$\Rightarrow \frac{14y^2+33}{33y} = \frac{131}{99}$$

$$\Rightarrow 42y^2 + 99 = 131y$$

$$\Rightarrow 42y^2 - 131y + 99 = 0$$

$$\Rightarrow 42y^2 - 77y - 54y + 99 = 0$$

$$\Rightarrow 7y(6y - 11) - 9(6y - 11) = 0$$

$$\Rightarrow (6y - 11)(7y - 9) = 0$$

$$\Rightarrow y = \frac{11}{6}, \frac{9}{7}$$

So, $y \geq x$

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S7. Ans.(a)

Sol.

$$I. 20x^2 - x - 12 = 0$$

$$\Rightarrow 20x^2 - 16x + 15x - 12 = 0$$

$$\Rightarrow 4x(5x - 4) + 3(5x - 4) = 0$$

$$\Rightarrow (5x - 4)(4x + 3) = 0$$

$$\Rightarrow x = \frac{4}{5}, \frac{-3}{4}$$

$$II. 8y^2 + 38y + 35 = 0$$

$$\Rightarrow 8y^2 + 10y + 28y + 35 = 0$$

$$\Rightarrow 2y(4y + 5) + 7(4y + 5) = 0$$

$$\Rightarrow (4y + 5)(2y + 7) = 0$$

$$\Rightarrow y = \frac{-5}{4}, \frac{-7}{2}$$

So, $x > y$

S8. Ans.(e)

Sol.

$$\text{I. } 33x^2 - 49x + 18 = 0$$

$$\Rightarrow 33x^2 - 22x - 27x + 18 = 0$$

$$\Rightarrow 11x(3x - 2) - 9(3x - 2) = 0$$

$$\Rightarrow (3x - 2)(11x - 9) = 0$$

$$\Rightarrow x = \frac{2}{3}, \frac{9}{11}$$

$$\text{II. } 55y^2 - 32y - 63 = 0$$

$$\Rightarrow 55y^2 - 77y + 45y - 63 = 0$$

$$\Rightarrow 11y(5y - 7) + 9(5y - 7) = 0$$

$$\Rightarrow (5y - 7)(11y + 9) = 0$$

$$\Rightarrow y = \frac{7}{5}, \frac{-9}{11}$$

So, No relation

S9. Ans. (e)

Sol.

$$\text{I. } 4x^2 + 12x = 91$$

$$\Rightarrow 4x^2 - 14x + 26x - 91 = 0$$

$$\Rightarrow 2x(2x - 7) + 13(2x - 7) = 0$$

$$\Rightarrow (2x - 7)(2x + 13) = 0$$

$$\Rightarrow x = -\frac{13}{2}, \frac{7}{2}$$

$$\text{II. } 4y^2 + 20y = 75$$

$$\Rightarrow 4y^2 + 30y - 10y - 75 = 0$$

$$\Rightarrow 2y(2y + 15) - 5(2y + 15) = 0$$

$$\Rightarrow (2y + 15)(2y - 5) = 0$$

$$\Rightarrow y = -\frac{15}{2}, \frac{5}{2}$$

no relation

S10. Ans.(e)

Sol.

$$\text{I. } (y)^{\frac{3}{2}} + 3(y)^{\frac{1}{2}} - \frac{54}{(y)^{\frac{1}{2}}} = 0$$

$$\Rightarrow \frac{y^2 + 3y - 54}{(y)^{\frac{1}{2}}} = 0$$

$$\Rightarrow y^2 + 3y - 54 = 0$$

$$\Rightarrow y^2 + 9y - 6y - 54 = 0$$

$$\Rightarrow y(y + 9) - 6(y + 9) = 0$$

$$\Rightarrow (y + 9)(y - 6) = 0$$

$$\Rightarrow y = 6, -9$$

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$$\text{II. } \frac{x}{23} + \frac{1}{4} = \frac{117}{92x}$$

$$\Rightarrow \frac{x}{23} + \frac{1}{4} - \frac{117}{92x} = 0$$

$$\Rightarrow \frac{4x^2 + 23x - 117}{92x} = 0$$

$$\Rightarrow 4x^2 + 23x - 117 = 0$$

$$\Rightarrow 4x^2 + 36x - 13x - 117 = 0$$

$$\Rightarrow 4x(x + 9) - 13(x + 9) = 0$$

$$\Rightarrow (x + 9)(4x - 13) = 0$$

$$\Rightarrow x = -9, \frac{13}{4}$$

So, No relation

S11. Ans (b)

Sol. Number of diesel engine vehicles in Hyderabad = $\frac{5}{14} \times \frac{28}{100} \times 70000$
= 7000

Number of petrol engine vehicles in Delhi-NCR = $\frac{1}{2} \times \frac{26}{100} \times 70000$
= 9100

Required difference = 9100 - 7000 = 2100

S12. Ans (a)

Sol. Number of petrol engine vehicles in Bangalore = $\frac{3}{8} \times \frac{32}{100} \times 70000$
= 8400

Number of diesel engine vehicles in Chandigarh = $\frac{3}{7} \times \frac{14}{100} \times 70000$
= 4200

Required percent = $\frac{8400 - 4200}{4200} \times 100$
= 100%

S13. Ans (d)

Sol. Number of non-AC diesel vehicles in Bangalore = $\frac{(100-25)}{100} \times \frac{32}{100} \times \frac{5}{8} \times 70000$
= $\frac{3}{4} \times 20 \times 700$
= 10500

S14. Ans (e)

Sol. total number of vehicles in Bangalore = $\frac{32}{100} \times 70000$
= 22400

Number of petrol engine vehicles in Hyderabad = $\frac{9}{14} \times \frac{28}{100} \times 70000$
= 12600

Required difference = 22400 - 12600 = 9800

S15. Ans (b)

Sol. Petrol engine vehicles in Chandigarh = $\frac{4}{7} \times \frac{14}{100} \times 70000$

$$= 5600$$

$$\text{Petrol engine vehicles in Hyderabad} = \frac{9}{14} \times \frac{28}{100} \times 70000$$

$$= 12600$$

$$\text{Petrol engine vehicles in Bangalore} = \frac{3}{8} \times \frac{32}{100} \times 70000$$

$$= 8400$$

$$\text{Petrol engine vehicles in Delhi-NCR} = \frac{1}{2} \times \frac{26}{100} \times 70000$$

$$= 9100$$

$$\text{Average} = \frac{5600+12600+8400+9100}{4}$$

$$= 8925$$

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