

1. John buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, what is his gain percent?

A. 12%

B. 10%

C. $4\frac{4}{7}\%$

D. $5\frac{5}{11}\%$

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Answer : Option D

Explanation :

Cost Price (CP) = 4700 + 800 = Rs. 5500.

Selling Price (SP) = Rs. 5800.

Gain = (SP) - (CP) = 5800 - 5500 = Rs. 300.

$$\text{Gain}\% = \left(\frac{\text{Gain}}{\text{CP}}\right) \times 100 = \left(\frac{300}{5500}\right) \times 100 = \frac{300}{55} = \frac{60}{11} = 5\frac{5}{11}$$

2. The cost price of 20 articles is the same as the selling price of x articles. If the profit is 25%, find out the value of x

A. 15

B. 25

C. 18

D. 16

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Answer : Option D

Explanation :

Let the Cost Price (CP) of one article = 1

=> CP of x articles = x -----(Equation 1)

CP of 20 articles = 20

Given that cost price of 20 articles is the same as the selling price of x articles

=> Selling price (SP) of x articles = 20-----(Equation 2)

Given that Profit = 25%

$$\Rightarrow \left(\frac{\text{SP} - \text{CP}}{\text{CP}}\right) = \frac{25}{100} = \frac{1}{4} \text{-----(Equation 3)}$$

Substituting equations 1 and 2 in equation 3,

$$\Rightarrow \frac{(20 - x)}{x} = \frac{1}{4}$$

$$\Rightarrow 80 - 4x = x$$

$$\Rightarrow 5x = 80$$

$$\Rightarrow x = \frac{80}{5} = 16$$

3. If selling price is doubled, the profit triples. What is the profit percent?

A. 100

B. $105\frac{1}{3}$

C. $66\frac{2}{3}$

D. 120

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Answer : Option A

Explanation :

Let the CP = x , SP = y

profit = SP - CP = y - x

If SP is doubled, SP = 2y

Now Profit = SP - CP = 2y - x

Given that If selling price is doubled, the profit triples

$$\Rightarrow 2y - x = 3(y - x)$$

$$\Rightarrow 2y - x = 3y - 3x$$

$$\Rightarrow y = 2x$$

$$\Rightarrow \text{Profit}\% = \frac{\text{Profit}}{\text{CP}} \times 100$$

$$= \frac{y - x}{x} \times 100$$

$$= \frac{2x - x}{x} \times 100$$

$$= \frac{x}{x} \times 100$$

$$= 100\%$$

4. In a shop, the profit is 320% of the cost. If the cost increases by 25% but the selling price remains constant, find out approximately what percentage of the selling price is the profit?

A. 250%

B. 100%

C. 70%

D. 30%

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Answer : Option C

Explanation :

Here is the answer and explanation

Answer : Option C

Explanation :

Let CP = x

Percentage profit earned by selling an item for Rs. 1920

$$= \frac{SP - CP}{CP} \times 100$$

$$= \frac{1920 - x}{x} \times 100$$

Percentage loss incurred by selling the same item for Rs. 1280

$$= \frac{CP - SP}{CP} \times 100$$

$$= \frac{x - 1280}{x} \times 100$$

Given that Percentage profit earned by selling an item for Rs. 1920 =
Percentage loss incurred by selling the same item for Rs. 1280

$$\Rightarrow \frac{1920 - x}{x} \times 100 = \frac{x - 1280}{x} \times 100$$

$$\Rightarrow \frac{1920 - x}{x} = \frac{x - 1280}{x}$$

$$\Rightarrow 1920 - x = x - 1280$$

$$\Rightarrow 2x = 1920 + 1280 = 3200$$

$$\Rightarrow x = \frac{3200}{2}$$

$$= 1600$$

$$\text{Required Selling Price} = CP \times \frac{125}{100}$$

$$= 1600 \times \frac{125}{100} = 1600 \times \frac{5}{4}$$

$$= 400 \times 5 = 2000$$

7. An exporter expects a gain of 22.5% on his cost price. If in a week, his sale was of Rs. 392, what was his profit?

A. Insufficient Data

B. Rs. 80

C. Rs. 90

D. Rs. 72

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Answer : Option D

Explanation :

$$SP = 392$$

$$\text{Gain} = 22.5\%$$

$$CP = \frac{100}{100 + \text{Gain}\%} \times SP = \frac{100}{100 + 22.5} \times 392 = \frac{100}{122.5} \times 392$$

$$= \frac{1000}{1225} \times 392 = \frac{40}{49} \times 392 = \frac{40}{7} \times 56 = 40 \times 8 = 320$$

$$\text{Profit} = SP - CP = 392 - 320 = 72$$

8. A man buys a scooter for Rs. 1400 and sells it at a loss of 15%. What is the selling price of the scooter?

A. Rs. 1240

B. Rs. 1190

C. Rs. 1090

D. Rs. 1130

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Answer : Option B

Explanation :

$$SP = 1400 \times \frac{85}{100} = 14 \times 85 = 1190$$

9. Murali purchased 20 dozens of toys at the rate of Rs. 375 per dozen. He sold each one of them at the rate of Rs. 33. Find out his profit percentage.

A. 3.5

B. 5.6

C. 4.1

D. 3.4

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Answer : Option B

Explanation :

$$\text{CP of 1 toy} = \frac{375}{12}$$

$$\text{SP of 1 toy} = 33$$

$$\text{Profit} = \text{SP} - \text{CP} = 33 - \frac{375}{12}$$

$$\text{Profit\%} = \frac{\text{Profit}}{\text{CP}} \times 100 = \frac{(33 - \frac{375}{12})}{\frac{375}{12}} \times 100$$

$$= (33 \times \frac{12}{375} - 1) \times 100 = (33 \times \frac{4}{125} - 1) \times 100$$

$$= \frac{7}{125} \times 100 = \frac{7}{5} \times 4 = \frac{28}{5} = 5 \frac{3}{5} \% = 5.6\%$$

10. Some items were bought at 6 items for Rs. 5 and sold at 5 items for Rs. 6. What is the gain percentage?

A. 44%

B. $33 \frac{1}{3}$

C. $31 \frac{2}{3}$

D. 30%

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Answer : Option A

Explanation :

$$\text{CP of 1 item} = \frac{5}{6}$$

$$\text{SP of 1 item} = \frac{6}{5}$$

$$\text{Gain\%} = \frac{\text{SP} - \text{CP}}{\text{CP}} \times 100 = \frac{\frac{6}{5} - \frac{5}{6}}{\frac{5}{6}} \times 100 = (\frac{36}{25} - 1) \times 100$$

$$\frac{11}{25} \times 100 = 11 \times 4 = 44$$

11. On selling 17 balls at Rs. 720, there is a loss equal to the cost price of 5 balls. What is the cost price of a ball?

A. Rs. 43

B. Rs. 60

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Answer : Option B

Explanation :

$$\text{Loss} = (\text{CP of 17 balls}) - (\text{SP of 17 balls}) = (\text{CP of 17 balls}) - 720$$

$$\text{Given that Loss} = (\text{CP of 5 balls})$$

$$\Rightarrow (\text{CP of 17 balls}) - 720 = (\text{CP of 5 balls})$$

$$\Rightarrow (\text{CP of 17 balls}) - (\text{CP of 5 balls}) = 720$$

$$\Rightarrow \text{CP of 12 balls} = 720$$

$$\Rightarrow \text{CP of 1 ball} = \frac{720}{12} = 60$$

12. When an item is sold for Rs. 18,700, the owner loses 15%. At what price should that plot be sold to get a gain of 15%?

A. Rs. 25100

B. Rs. 24200

C. Rs. 25300

D. Rs. 21200

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Answer : Option C

Explanation :

When an item is sold for Rs. 18,700, the owner loses 15%

$$\Rightarrow SP = 18700 \text{ and Loss} = 15\%$$

$$\Rightarrow CP = \frac{100}{100 - \text{Loss}\%} \times SP = \frac{100}{100 - 15} \times 18700 = \frac{100}{85} \times 18700$$

$$\text{To get a gain of 15\%, } SP = \frac{100 + \text{Gain}\%}{100} \times CP = \frac{100 + 15}{100} \times CP = \frac{115}{100} \times CP$$

$$= \frac{115}{100} \times \frac{100}{85} \times 18700 = \frac{115}{85} \times 18700 = \frac{23}{17} \times 18700$$

$$= 23 \times 1100 = 25300$$

13. 100 oranges were bought at the rate of Rs. 350 and sold at the rate of Rs. 48 per dozen. What is the percentage of profit or loss?

A. $11 \frac{2}{7}$ % Loss

B. $11 \frac{1}{7}$ % Profit

C. $14 \frac{2}{7}$ % Profit

D. $14 \frac{2}{7}$ % Loss

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Answer : Option C

Explanation :

$$\text{CP of 100 oranges} = 350$$

$$\Rightarrow \text{CP of 1 orange} = \frac{350}{100} = 3.5$$

$$\text{SP of 12 oranges} = 48$$

$$\Rightarrow \text{SP of 1 orange} = \frac{48}{12} = 4$$

$$\text{Profit\%} = \frac{SP - CP}{CP} \times 100 = \frac{4 - 3.5}{3.5} \times 100 = \frac{.5}{3.5} \times 100$$

$$= \frac{1}{7} \times 100 = \frac{100}{7} = 14 \frac{2}{7}$$

14. A shopkeeper sells one radio for Rs. 840 at a gain of 20% and another for Rs. 960 at a loss of 4%. What is his total gain or loss percentage?

A. 5%

B. 6%

C. $6\frac{12}{17}\%$

D. $5\frac{15}{17}\%$

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Answer : Option D

Explanation :

SP of 1st Radio = 840

Gain = 20%

$$\text{CP of 1st Radio} = \frac{100}{(100 + \text{Gain}\%)} \times \text{SP} = \frac{100}{(100 + 20)} \times 840 = 100 \times 7 = 700$$

SP of 2nd Radio = 960

Loss = 4%

$$\text{CP of 2nd Radio} = \frac{100}{(100 - \text{Loss}\%)} \times \text{SP} = \frac{100}{(100 - 4)} \times 960 = 100 \times 10 = 1000$$

Total CP = 700 + 1000 = 1700

Total SP = 840 + 960 = 1800

Total Gain = SP - CP = 1800 - 1700 = 100

$$\text{Gain}\% = \frac{\text{Gain}}{\text{CP}} \times 100 = \frac{100}{1700} \times 100 = \frac{100}{17} = 5\frac{15}{17}$$

17. A fruit seller sells apples at the rate of Rs.9 per kg and thereby loses 20%. At what price per kg, he should have sold them to make a profit of 5%?

A. 11.32

B. 11

C. 12

D. 11.81

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Here is the answer and explanation

Answer : Option D

Explanation :

$$SP = 9$$

$$\text{Loss} = 20\%$$

$$CP = \frac{100}{(100 - \text{Loss}\%)} \times SP = \frac{100}{(100 - 20)} \times 9 = \frac{100}{80} \times 9$$

$$= \frac{5}{4} \times 9$$

$$\text{to make a profit of } 5\%, SP = \frac{100 + \text{Gain}\%}{100} \times CP = \frac{(100 + 5)}{100} \times CP$$

$$= \frac{105}{100} \times \frac{5}{4} \times 9 = \frac{105}{100} \times \frac{5}{4} \times 9 = \frac{21}{20} \times \frac{5}{4} \times 9 = \frac{21}{4} \times \frac{1}{4} \times 9 = \frac{189}{16} = 11.81$$

18. A trader gives 12% additional discount on the discounted price, after giving an initial discount of 20% on the labeled price of an item. The final sale price of the item is Rs.704. Find out the labeled price?

A. 1000

B. 2000

C. 1200

D. 920

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Here is the answer and explanation

Answer : Option A

Explanation :

Let the labeled price = x

$$SP = 704$$

Initial Discount = 20%

$$\text{Price after initial discount} = x \times \frac{80}{100}$$

Additional discount = 12%

$$\text{Price after additional discount} = x \times \frac{80}{100} \times \frac{88}{100}$$

But Price after additional discount = SP = 704

$$\Rightarrow x \times \frac{80}{100} \times \frac{88}{100} = 704$$

$$\Rightarrow x \times \frac{4}{5} \times \frac{22}{25} = 704$$

$$\Rightarrow x = 704 \times \frac{25}{22} \times \frac{5}{4} = 176 \times \frac{25}{22} \times 5$$

$$= 8 \times 25 \times 5 = 40 \times 25 = 1000$$

19. A man sells two houses at the rate of Rs.1.995 lakhs each. On one he gains 5% and on the other, he loses 5%. What is his gain or loss percent in the whole transaction?

A. 0.25%.

B. .3%

C. .4%

D. .5%

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Answer : Option A

Explanation :

If a person sells two items at the same price; one at a gain of x % and another at a loss of x %, then the seller always incurs a loss expressed as

$$\text{Loss\%} = \left(\frac{\text{Common Loss and Gain\%}}{10} \right)^2 = \left(\frac{x}{10} \right)^2$$

So in this case, he will have a loss. $\text{Loss\%} = \left(\frac{5}{10} \right)^2$

$$= \left(\frac{1}{2} \right)^2 = \left(\frac{1}{4} \right) = .25$$

20. John purchased a machine for Rs. 80,000. After spending Rs.5000 on repair and Rs.1000 on transport he sold it with 25% profit. What price did he sell the machine?

A. Rs.107000.

B. Rs.107500.

C. Rs.108500.

D. None of these

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Answer : Option B

Explanation :

$$\text{CP} = 80,000 + 5000 + 1000 = 86000$$

Profit = 25%

$$\text{SP} = \frac{(100 + \text{Gain\%})}{100} \times \text{CP} = \frac{(100 + 25)}{100} \times 86000$$

$$= \frac{125}{100} \times 86000 = \frac{5}{4} \times 86000 = 5 \times 21500 = 107500$$

21. By selling an item for Rs.15, a trader loses one sixteenth of what it costs him. The cost price of the item is

A. Rs.14

B. Rs.15

C. Rs.16

D. Rs.17

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Answer : Option C

Explanation :

$$SP = 15$$

$$\text{Loss} = \frac{CP}{16}$$

$$\text{Loss} = CP - SP = CP - 15$$

$$\Rightarrow \frac{CP}{16} = CP - 15$$

$$\Rightarrow \frac{15 CP}{16} = 15$$

$$\Rightarrow \frac{CP}{16} = 1$$

$$\Rightarrow CP = 16$$

22. A shopkeeper sells his goods at cost price but uses a weight of 800 gm instead of kilogram weight. What is his profit percentage?

A. 18%

B. 40%

C. 25%

D. 20%

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Answer : Option C

Explanation :

If a trader professes to sell his goods at cost price, but uses false weights, then

$$\text{Gain\%} = \left[\frac{\text{Error}}{(\text{True Value} - \text{Error})} \times 100 \right] \%$$

$$\text{So here profit percentage} = \left[\frac{200}{(1000 - 200)} \times 100 \right] \%$$

$$= \left[\frac{200}{800} \times 100 \right] \% = 25\%$$

23. Prasanth bought a car and paid 10 % less than the original price. He sold it with 30% profit on the price he had paid. What percentage of profit did he earn on the original price?

A. 17%

B. 16%

C. 18%

D. 14%

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Answer : Option A

Explanation :

Let the original price = 100

Then the price at which he purchased (CP) = 90% of 100 = 90

Profit = 30%

$$SP = \frac{(100 + \text{Profit}\%) }{100} \times CP = \frac{(100 + 30)}{100} \times 90$$

$$= \frac{130}{100} \times 90 = 13 \times 9 = 117$$

$$\text{Required \%} = \frac{(117 - 100)}{100} \times 100 = 17\%$$

24. If a seller reduces the selling price of an item from Rs.400 to Rs.380, his loss increases by 2%. What is the cost price of the item?

A. 1000

B. 800

C. 1200

D. 1100

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Answer : Option A

Explanation :

$$\text{Initial Loss\%} = \frac{\text{CP} - 400}{\text{CP}} \times 100$$

$$\text{If the SP is reduced from 400 to 380, Loss\%} = \frac{\text{CP} - 380}{\text{CP}} \times 100$$

It is given that If the SP is reduced from 400 to 380, Loss% increases by 2

$$\Rightarrow \frac{\text{CP} - 380}{\text{CP}} \times 100 - \frac{\text{CP} - 400}{\text{CP}} \times 100 = 2$$

$$\Rightarrow (\text{CP} - 380) - (\text{CP} - 400) = \frac{2 \times \text{CP}}{100}$$

$$\Rightarrow 20 = \frac{2 \times \text{CP}}{100}$$

$$\Rightarrow \text{CP} = \frac{20 \times 100}{2} = 1000$$

25. A trader keeps the marked price of an item 35% above its cost price. The percentage of discount allowed to gain 8% is

- A. None
B. 30%
C. 25%
D. 20%

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Answer : Option D

Explanation :

Let the Cost Price (CP) = 100

$$\text{Then Market Price} = \frac{100 \times 135}{100} = 135$$

$$\text{If he wants to gain 8\%, SP} = \frac{(100 + \text{Gain\%})}{100} \times \text{CP} = \frac{(100 + 8)}{100} \times 100 = 108$$

$$\text{Discount \%} = \frac{(135 - 108)}{135} \times 100 = \frac{2700}{135} = 20$$

26. Arun bought a computer with 15% discount on the labeled price. He sold the computer for Rs.2880 with 20% profit on the labeled price. At what price did he buy the computer?

- A. Rs.3000
B. Rs.2080
C. Rs.2040
D. Rs.2000

If the item was sold for Rs.25.75,

$$\text{Gain\%} = \frac{(25.75 - 25)}{25} \times 100 = \frac{.75}{25} \times 100 = 3\%$$

28. If selling price of an article is Rs. 250, profit percentage is 25%. Find the ratio of the cost price and the selling price

- A. 5 : 3
B. 3 : 5
C. 4 : 5
D. 5 : 4

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Answer : Option C

Explanation :

$$\text{SP} = 250$$

$$\text{Profit} = 25\%$$

$$\text{CP} = \frac{100}{(100 + \text{Profit}\%)} \times \text{SP} = \frac{100}{(100 + 25)} \times 250 = \frac{100}{125} \times 250 = 200$$

$$\text{Required Ratio} = 200 : 250 = 4:5$$

29. A material is purchased for Rs. 600. If one fourth of the material is sold at a loss of 20% and the remaining at a gain of 10%, Find out the overall gain or loss percentage?

- A. $3\frac{1}{2}\%$
B. $2\frac{1}{2}\%$
C. 3%
D. 2%

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Answer : Option B

Explanation :

$$\text{CP} = 600$$

Price Received by selling one fourth of the material at a loss of 20%

$$= \frac{1}{4} \times 600 \times \frac{80}{100} = 120$$

Price Received by remaining material at a gain of 10%

$$= \frac{3}{4} \times 600 \times \frac{110}{100} = 495$$

$$SP = 120 + 495 = 615$$

$$\text{Profit}\% = \frac{(SP - CP)}{CP} \times 100 = \frac{(615 - 600)}{600} \times 100 = \frac{15}{600} \times 100 = \frac{15}{6} = \frac{5}{2} = 2\frac{1}{2}\%$$

30. A shopkeeper buys pencils at 9 for Rs. 16 and sells them at 11 for Rs. 22. Find out his loss or gain percentage?

A. $12\frac{1}{2}\%$

B. 12%

C. 14%

D. $11\frac{2}{3}\%$

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Answer : Option A

Explanation :

$$\text{CP of 1 pencil} = \frac{16}{9}$$

$$\text{SP of 1 pencil} = \frac{22}{11} = 2$$

$$\text{Profit}\% = \frac{(SP - CP)}{CP} \times 100 = \frac{(2 - \frac{16}{9})}{\frac{16}{9}} \times 100 = \frac{\frac{2}{9}}{\frac{16}{9}} \times 100 = \frac{100}{8} = 12\frac{1}{2}\%$$

31. A reduction of 10% in the price of a pen enabled a trader to purchase 9 more for Rs.540. What is the reduced price of the pen?

A. 8

B. 6

C. 5

D. 4

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Answer : Option B

Explanation :

Let price of a pen = x

$$\text{Number of pens purchased for Rs.540} = \frac{540}{x}$$

$$\text{Price of a pen after the reduction of 10\%} = \frac{90x}{100} = \frac{9x}{10}$$

$$\text{Number of pens purchased for Rs.540 with reduced price} = \frac{540}{\frac{9x}{10}} = \frac{600}{x}$$

$$\text{Additional pens purchased} = \frac{600}{x} - \frac{540}{x} = \frac{60}{x}$$

Given that Additional pens purchased = 9

$$\Rightarrow \frac{60}{x} = 9$$

$$x = \frac{60}{9}$$

$$\text{Reduced price of the pen} = \frac{60}{9} \times \frac{90}{100} = 6$$

32. Sunil purchases two books at Rs.300 each. He sold one book 10% gain and other at 10% loss. What is the total loss or gain in percentage?

A. 10% gain

B. 1% loss

C. No loss or no gain

D. 1% gain

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Answer : Option C

Explanation :

$$\text{CP of two books} = 300 + 300 = 600$$

$$\text{SP of two books} = 300 \times \frac{110}{100} + 300 \times \frac{90}{100} = \frac{300}{100} \times (110 + 90) = 3 \times 200 = 600$$

Total SP = Total CP

Hence No loss or no gain