**EXERCISE 9A**                                                                                    **PAGE: 104**

**1. Find the gain or loss percent, if:**
**(i) C.P. = ₹ 200 and S.P. = ₹ 224**
**(ii) C.P. = ₹ 450 and S.P. = ₹ 400**
**(iii) C.P. = ₹ 550 and gain = ₹ 22**
**(iv) C.P. = ₹ 216 and loss = ₹ 72**
**(v) S.P. = ₹ 500 and loss = ₹ 100**
**Solution:**

(i) C.P. = ₹ 200 and S.P. = ₹ 224
We know that
Gain = S.P. – C.P.
So we get
= 224 – 200
= ₹ 24

So we get
Gain percent = (gain × 100)/ C.P.
Substituting the values
= (24 × 100)/ 200
= 12%

(ii) C.P. = ₹ 450 and S.P. = ₹ 400
We know that
Loss = C.P. – S.P.
So we get
= 450 – 400
= ₹ 50

So we get
Loss percent = (loss × 100)/ C.P.
Substituting the values
= (50 × 100)/ 450
= 100/9
= 11 1/9%

(iii) C.P. = ₹ 550 and gain = ₹ 22
We know that
S.P. = C.P. + gain
So we get
= 550 + 22
= ₹ 572

So we get
Gain percent = (gain × 200)/ C.P.
Substituting the values
= (22 × 100)/ 550
= 4%

(iv) C.P. = ₹ 216 and loss = ₹ 72
We know that
S.P. = C.P. – loss
So we get
= 216 – 72
= ₹ 144

So we get
Loss percent = (loss × 100)/ C.P.
Substituting the values
= (72 × 100)/ 216
= 100/3
= 33 1/3%

(v) S.P. = ₹ 500 and loss = ₹ 100
We know that
C.P. = S.P. + loss
So we get
= 500 + 100
= ₹ 600

So we get
Loss percent = (loss × 100)/ C.P.
Substituting the values
= (100 × 100)/ 600
= 50/3
= 16 2/3 %

**2. Find the selling price, if:**
**(i) C.P = ₹ 500 and gain = 25%**
**(ii) C.P. = ₹ 60 and loss = 12 ½ %**
**Solution:**

(i) C.P = ₹ 500 and gain = 25%
We know that
S.P. = [C.P. (100 + gain percent)]/ 100
Substituting the values
= [500 (100 + 25)]/ 100
We get
= (500 × 125)/ 100
= ₹ 625

(ii) C.P. = ₹ 60 and loss = 12 ½ %
We know that
Loss = 12 ½ % = 25/2%
Here
S.P. = [C.P. (100 – Loss percent)]/ 100
Substituting the values
= [60 (100 – 25/2)]/ 100
So we get

= [60 (200 – 25/ 2)]/ 100
We can write it as
= (60 × 175)/ (2 × 100)
= ₹ 105/2
= ₹ 52.50

**3. Rohit bought a tape-recorder for ₹ 1,500 and sold it for ₹ 1,800. Calculate his profit or loss percent.**
**Solution:**

It is given that
C.P of tape-recorder = ₹ 1,500
S.P of tape-recorder = ₹ 1,800
We know that
Gain = S.P – C. P
= 1800 – 1500
= ₹ 300

Gain percent = (Gain × 100)/ C.P
Substituting the values
= (300 × 100)/ 1500
= 20%

**4. An article bought for ₹ 350 is sold at a profit of 20%. Find its selling price.**
**Solution:**

It is given that
C.P of an article = ₹ 350
Profit = 20%
We know that
S.P = [C.P (100 + profit percent)]/ 100
Substituting the values
= [350 (100 + 20)]/ 100
So we get
= (350 × 120)/ 100
= ₹ 420

**5. An old machine is bought for ₹ 1,400 and is sold at a loss of 15%. Find its selling price.**
**Solution:**

It is given that
C.P. of the old machine = ₹ 1,400
Loss percent = 15%
We know that
S.P = [C.P (100 – loss percent)]/ 100
Substituting the values
= [1400 (100 – 15)]/ 100
By further calculation
= (1400 × 85)/ 100
= ₹ 1190

**6. Oranges are bought at 5 for ₹ 10 and sold at 6 for ₹ 15. Find profit or loss as percent.**
**Solution:**

We know that
LCM of 5 and 6 = 30

Consider that 30 oranges are bought
So the C.P of 30 oranges = (30 × 10)/ 5 = ₹ 60
S.P of 30 oranges = (30 × 15)/ 6 = ₹ 75

Gain = S.P – C.P
Substituting the values
= 75 – 60
= ₹ 15

Gain percent = (gain × 100)/ C.P
Substituting the values
= (15 × 100)/ 60
= 25%

**7. A certain number of articles are bought at 3 for ₹ 150 and all of them are sold at 4 for ₹ 180. Find the loss or gain as percent.**
**Solution:**

We know that
LCM of 3 and 4 = 12

Consider that 12 articles are bought
So the C.P of 12 articles = (150 × 12)/ 3 = ₹ 600
S.P of 12 articles = (180 × 12)/ 4 = ₹ 540

Loss = C.P – S.P
Substituting the values
= 600 – 540
= ₹ 60

Loss percent = (loss × 100)/ C.P
Substituting the values
= (60 × 100)/ 600
= 10%

**8. A vendor bought 120 sweets at 20 p each. In his house, 18 were consumed and he sold the remaining at 30p each. Find his profit or loss as percent.**
**Solution:**

No. of sweets bought = 120
C.P of 120 sweets = (120 × 20)/ 100 = ₹ 24
No. of sweets consumed = 18
So the balance sweets = 120 – 18 = 102
S.P of 102 sweets = (102 × 30)/ 100 = ₹ 30.60

Gain = S.P – C.P
Substituting the values
= 30.60 – 24
= ₹ 6.60

Gain percent = (gain × 100)/ C.P
Substituting the values
= (6.60 × 100)/ 24
Multiplying both numerator and denominator by 100
= (660 × 100)/ (100 × 24)
= 55/2
= 27.5%

**9. The cost price of an article is ₹ 1,200 and selling price is 5/4 times of its cost price.**
**Find:**
**(i) Selling price of the article,**
**(ii) Profit or loss as percent.**
**Solution:**

It is given that
C.P of an article = ₹ 1,200
We know that
S.P = 5/4 of C.P
Substituting the values
S.P = 5/4 × 1200 = ₹ 1,500

Gain = S.P – C.P
Substituting the values
= 1500 – 1200
= ₹ 300

Gain percent = (gain × 100)/ C.P
Substituting the values
= (300 × 100)/ 1200
= 25%

**10. The selling price of an article is ₹ 1,200 and cost price is 5/4 times of its selling price.**
**Find:**
**(i) cost price of the article,**
**(ii) profit or loss as percent.**
**Solution:**

(i) S.P of an article = ₹ 1,200
We know that
C.P = 5/4 of S.P
Substituting the values
= 5/4 × 1200
= ₹ 1,500

(ii) Loss = C.P – S.P

Substituting the values
= 1500 – 1200
= ₹ 300

Loss percent = (loss × 100)/ C.P
Substituting the values
= (300 × 100)/ 1500
So we get
= 100/5
= 20%

**EXERCISE 9B** **PAGE: 107**

**1. Find the cost price, if:**
**(i) S.P. = ₹ 21 and gain = 5%**
**(ii) S.P. = ₹ 22 and loss = 12%**
**(iii) S.P. = ₹ 340 and gain = ₹ 20**
**(iv) S.P. = ₹ 200 and loss = ₹ 50**
**(v) S.P. = ₹ 1 and loss = 5 p**
**Solution:**

(i) S.P. = ₹ 21 and gain = 5%
We know that
C.P. = (S.P. × 100)/ (100 + gain percent)
Substituting the values
= (21 × 100)/ (100 + 5)
= (21 × 100)/ 105
So we get
= ₹ 20

(ii) S.P. = ₹ 22 and loss = 12%
We know that
C.P. = (S.P. × 100)/ (100 - loss percent)
Substituting the values
= (22 × 100)/ (100 – 12)
= (22 × 100)/ 88
So we get
= ₹ 25

(iii) S.P. = ₹ 340 and gain = ₹ 20
We know that
C.P. = S.P. – Gain
Substituting the values
= 340 – 20
= ₹ 320

(iv) S.P. = ₹ 200 and loss = ₹ 50
We know that
C.P. = S.P. + loss
Substituting the values
= 200 + 50
= ₹ 250

(v) S.P. = ₹ 1 and loss = 5 p
We know that
C.P. = S.P. + Loss
Substituting the values
= ₹ 1 + 5 p
= ₹ 1.05

**2. By selling an article for ₹ 810, a loss of percent is suffered. Find its cost price.**

**Solution:**

It is given that
S.P of an article = ₹ 810
Loss percent = 10 %
We know that
C.P. = (S.P. × 100)/ (100 – loss percent)
Substituting the values
= (810 × 100)/ (100 – 10)
So we get
= (810 × 100)/ 90
= ₹ 900

**3. By selling a scooter for ₹ 9,200, a main gains 15%. Find the cost price of the scooter.**
**Solution:**

It is given that
S.P. of the scooter = ₹ 9,200
Gain percent = 15%
We know that
C.P. = (S.P. × 100)/ (100 + gain percent)
Substituting the values
= (9200 × 100)/ (100 + 15)
= (9200 × 100)/ 115
So we get
= ₹ 8000

**4. On selling an article for ₹ 2,640, a profit of 10 percent is made.**
**Find:**
**(i) cost price of the article.**
**(ii) new selling price of it, in order to gain 15%.**
**Solution:**

It is given that
S.P. of an article = ₹ 2,640
Gain percent = 10%

(i) C.P. = (S.P. × 100)/ (100 + gain percent)
Substituting the values
= (2640 × 100)/ (100 + 10)
= (2640 × 100)/ 110
So we get
= ₹ 2400

(ii) Gain percent = 15%
S.P. = [C.P. (100 + gain percent)]/ 100
Substituting the values
= [2400 (100 + 15)]/ 100
So we get
= (2400 × 115)/ 100

= ₹ 2760

**5. A T.V. set is sold for ₹ 6,800 at a loss of 15%.**
**Find:**
**(i) cost price of the T.V. set.**
**(ii) new selling price of it, in order to gain 12%.**
**Solution:**

It is given that
S.P. of the T.V. set = ₹ 6,800
Loss percent = 15%

(i) C.P. = (S.P. × 100)/ (100 – loss percent)
Substituting the values
= (6800 × 100)/ (100 – 15)
So we get
= (6800 × 100)/ 85
= ₹ 8000

(ii) Gain percent = 12%
We know that
S.P. = [C.P. (100 + gain percent)]/ 100
Substituting the values
= [8000 (100 + 12)]/ 100
So we get
= (8000 × 112)/ 100
= ₹ 8960

**6. A fruit seller bought mangoes at ₹ 90 per dozen and sold them at a loss of 8 percent. How much will a**
**customer pay for:**
**(i) one mango**
**(ii) 40 mangoes**
**Solution:**

It is given that
C.P. of 1 dozen mangoes = ₹ 90
Loss percent = 8%

Here the S.P of 1 dozen mangoes = [C.P. (100 - loss percent)]/ 100
Substituting the values
= [900 (100 - 8)]/ 100
So we get
= (90 × 92)/ 100
= ₹ 82.80

(i) S.P. of one mango = 82.80/12 = ₹ 6.90

(ii) S.P. of 40 mangoes = 6.90 × 40 = ₹ 276

**7. By selling two transistors for ₹ 600 each, a shopkeeper gains 20 percent on one transistor and loses 20**

percent on the other.
**Find:**
**(i) C.P. of each transistor.**
**(ii) total C.P. and total S.P. of both the transistors.**
**(iii) profit or loss percent on the whole.**
**Solution:**

It is given that
S.P of first transistor = ₹ 600
Gain percent = 20%

(i) C.P = (S.P. × 100)/ (100 + gain percent)
Substituting the values
= (600 × 100)/ (100 + 20)
= (600 × 100)/ 120
So we get
= ₹ 500

S.P of the second transistor = ₹ 600
Loss percent = 20%
So the C.P of the other transistor = (S.P. × 100)/ (100 – loss percent)
Substituting the values
= (600 × 100)/ (100 – 20)
So we get
= (600 × 100)/ 80
= ₹ 750

Hence, C.P of the two transistors are ₹ 500 and ₹ 750.

(ii) Total C.P of both the transistors = 500 + 750 = ₹ 1250
Total S.P of both the transistors = 600 + 600 = ₹ 1200

(iii) We know that
Total loss = C.P – S.P
Substituting the values
= 1250 – 1200
= ₹ 50

So the loss percent = (loss × 100)/ C.P
Substituting the values
= (50 × 100)/ 1250
= 4%

**8. Mangoes are bought at 20 for ₹ 60. If they are sold at a profit of 33 1/3 percent, find:**
**(i) selling price of each mango.**
**(ii) S.P. of 8 mangoes.**
**Solution:**

It is given that
C.P of 20 mangoes = ₹ 60

Gain percent = 33 1/3 % = 100/3 %

S.P of 20 mangoes = [C.P. (100 + gain percent)]/ 100
Substituting the values
= [60 (100 + 100/3)]/ 100
So we get
= (60 × 400)/ (100 × 3)
= ₹ 80

(i) S.P of one mango = 80/20 = ₹ 4

(ii) S.P of 8 mangoes = 4 × 8 = ₹ 32

**9. Find the cost price of an article, which is sold for ₹ 4,050 at a loss of 10%. Also, find the new selling price of the article which must give a profit of 8%.**
**Solution:**

It is given that
S.P of an article = ₹ 4,050
Loss percent = 10%

(i) C.P of the article = (S.P. × 100)/ (100 – loss percent)
Substituting the values
= (4050 × 100)/ (100 – 10)
So we get
= (4050 × 100)/ 90
= ₹ 4500

(ii) Gain percent = 8%
S.P of the article = [C.P. (100 + gain percent)]/ 100
Substituting the values
= [4500 (100 + 8)]/ 100
So we get
= (4500 × 108)/ 100
= ₹ 4860

**10. By selling an article for ₹ 825, a man losses an amount equal to 1/3 of its selling price. Find:**
**(i) the cost price of the article.**
**(ii) the profit percent or the loss percent made, if the same article is sold for ₹ 1,265.**
**Solution:**

It is given that
S.P of an article = ₹ 825
Loss = 1/3 of S.P = 1/3 × 825 = ₹ 275

(i) C.P = S.P + Loss
Substituting the values
= 825 + 275
= ₹ 1100

(ii) S.P = ₹ 1265
We know that
Gain = S.P – C.P
Substituting the values
= 1265 – 1100
= ₹ 165

Gain percent = (gain × 100)/ C.P
Substituting the values
= (165 × 100)/ 1100
= 15%

**11. Find the loss or gain as percent, if the C.P. of articles, all of the same kind, is equal to S.P. of 8 articles.**
**Solution:**

Consider C.P of 10 articles = S.P of 8 articles = ₹ 80
So the C.P of 1 article = 80/10 = ₹ 8
S.P of 1 article = 80/8 = ₹ 10

We know that
Gain = S.P – C.P
Substituting the values
= 10 – 8
= ₹ 2

Gain percent = (gain × 100)/ C.P
Substituting the values
= (2 × 100)/ 8
= 25%

**12. Find the loss or gain as percent, if the C.P. of 8 articles, all of the same kind, is equal to S.P. of 10 articles.**
**Solution:**

Consider C.P of 8 articles = S.P of 10 articles = ₹ 80
So the C.P of 1 article = 80/8 = ₹ 10
S.P of 1 article = 80/10 = ₹ 8

We know that
Loss = C.P – S.P
Substituting the values
= 10 – 8
= ₹ 2

Loss percent = (loss × 100)/ C.P
Substituting the values
= (2 × 100)/ 10
= 20%

**13. The cost price of an article is 96% of its selling price. Find the loss or the gain as percent on the whole.**

**Solution:**

Consider S.P = ₹ 100
We know that
C.P = 96% of S.P
So we get
= 96/100 × 100
= ₹ 96

Gain = 100 – 96 = ₹ 4
Gain percent = (gain × 100)/ C.P
Substituting the values
= 4/96 × 100%
= 25/6 or 4 1/6%

**14. The selling price of an article is 96% of its cost price. Find the loss or the gain as percent on the whole.**
**Solution:**

Consider C.P = ₹ 100
S.P = 96% of C.P
So we get
= 96/100 × 100
= ₹ 96

Loss = 100 – 96 = ₹ 4
Loss percent = (loss × 100)/ C.P
Substituting the values
= 4/100 × 100%
= 4 %

**15. Hundred oranges are bought for ₹ 350 and all of them are sold at the rate of ₹ 48 per dozen. Find the profit percent or loss percent made.**
**Solution:**

It is given that
C.P of one orange = 350/100 = ₹ 3.50
S.P of one orange = 48/12 = ₹ 4

Gain = 4 – 3.50 = ₹ 0.50
Gain percent = (gain × 100)/ C.P
Substituting the values
= 0.50/3.50 × 100%
= 14 2/7 %

EXERCISE 9C                                                                                          PAGE: 109

**1. A machine is marked at ₹ 5,000 and is sold at a discount of 10%. Find the selling price of the machine.**
**Solution:**

It is given that
M.P of the machine = ₹ 5, 000
Rate of discount = 10%
So the amount of discount = 5000 × 10/100 = ₹ 500
S.P = M.P – discount
Substituting the values
= 5000 – 500
= ₹ 4500

**2. A shopkeeper marked a dinner set for ₹ 1,000. He sold it at ₹ 900. What percent discount did he give?**
**Solution:**

It is given that
M.P of a dinner set = ₹ 1000
S.P of a dinner set = ₹ 900
So the amount of discount = 1000 – 900 = ₹ 100

Discount percent = (Discount × 100)/ M.P
Substituting the values
= (100 × 100)/ 1000
= 10%

**3. A pair of shoes, marked at ₹ 320, are sold at a discount of 15 percent.**
**Find:**
**(i) the discount,**
**(ii) the selling price of the shoes.**
**Solution:**

It is given that
M.P of shoes = ₹ 320
Rate of discount = 15%

(i) Amount of discount = (320 × 15)/ 100 = ₹ 48

(ii) S.P = M.P – Discount
Substituting the values
= 320 – 48
= ₹ 272

**4. The list price of an article is ₹ 450 and it is sold for ₹ 360.**
**Find:**
**(i) the discount,**
**(ii) the discount percent.**
**Solution:**

It is given that
M.P of an article = ₹ 450
S.P of an article = ₹ 360

(i) Amount of discount = M.P – S.P
Substituting the values
= 450 – 360
= ₹ 90

(ii) Discount percent = (discount × 100)/ M.P
Substituting the values
= (90 × 100)/ 450
= 20%

**5. A shopkeeper buys an article for ₹ 300. He increases its price by 20% and then gives 10% discount on the new price.**
**Find:**
**(i) the new price (marked price) of the article.**
**(ii) the discount given by the shopkeeper.**
**(iii) the selling price.**
**(iv) the profit percent made by the shopkeeper.**
**Solution:**

It is given that
C.P of an article = ₹ 300
Increase in price = 20%

(i) M.P = [C.P (100 + increase percent)]/ 100
Substituting the values
= [300 (100 + 20)]/ 100
So we get
= (300 × 120)/ 100
= ₹ 360

(ii) Rate of discount = 10%
Amount of discount = (360 × 10)/ 100 = ₹ 36

(iii) S.P = M.P – discount
Substituting the values
= 360 – 36
= ₹ 324

(iv) Net profit made by the shopkeeper = S.P – C.P
Substituting the values
= 324 – 300
= ₹ 24

We know that
Gain percent = (gain × 100)/ C.P
Substituting the values

= (24 × 100)/ 300
= 8%

**6. A car is marked at ₹ 50,000. The dealer gives 5% discount on first ₹ 20,000 and 2% discount on the remaining ₹ 30,000. Find:**
**(i) the total discount.**
**(ii) the price charged by the dealer.**
**Solution:**

It is given that
M.P of a car = ₹ 50,000
Discount at the rate of 5% on first ₹ 20,000 = (20,000 × 5)/ 100 = ₹ 1000
Discount at the rate of 2% on remaining ₹ 30,000 = (30,000 × 2)/ 100 = ₹ 600

(i) Total discount = 1000 + 600 = ₹ 1600

(ii) Price charged by the dealer = 50000 – 1600 = ₹ 48400

**7. A dealer buys a T.V. set for ₹ 2,500. He marks it at ₹ 3,200 and then gives a discount of 10% on it. Find:**
**(i) the selling price of the T.V. set**
**(ii) the profit percent made by the dealer.**
**Solution:**

It is given that
C.P of a T.V. set = ₹ 2,500
M.P of a T.V. set = ₹ 3,200
Rate of discount = 10%
So the total discount = 3200 × 10/100 = ₹ 320

(i) S.P of the TV set = 3200 – 320 = ₹ 2880

(ii) Gain = S.P – C.P
Substituting the values
= 2880 – 2500
= ₹ 380

Gain percent = (gain × 100)/ C.P
Substituting the values
= (380 × 100)/ 2500
= 76/5
= 15 1/5 % or 15.2%

**8. A sells his goods at 15% discount. Find the price of an article which is sold for ₹ 680.**
**Solution:**

It is given that
S.P of an article = ₹ 680
Rate of discount = 15%
Consider M.P of the article = ₹ 100
S.P = 100 – 15 = ₹ 85

If S.P of the article is ₹ 85 then M.P = ₹ 100
If S.P of the article is ₹ 680 then M.P = (100 × 680)/ 85 = ₹ 800

**9. A shopkeeper allows 20% discount on the marked price of his articles. Find the marked price of an article for which he charges ₹ 560.**
**Solution:**

Consider M.P of articles = ₹ 100
Discount on the M.P = 20%
S.P of articles = 100 – 20 = ₹ 80
If S.P of articles is ₹ 80 then M.P = ₹ 100
If S.P of articles is ₹ 560 then M.P = (100 × 560)/ 80 = ₹ 700

**10. An article is bought for ₹ 1,200 and ₹ 100 is spent on its transportation, etc. Find:**
**(i) the total C.P. of the article.**
**(ii) the selling price of it in order to gain 20% on the whole.**
**Solution:**

It is given that
C.P of an article = ₹ 1200
Amount spent on transportation = ₹ 100

(i) Total C.P of the article = 1200 + 100 = ₹ 1300

(ii) Gain = 20%
S.P = [C.P (100 + gain percent)]/ 100
Substituting the values
= [1300 (100 + 20)]/ 100
So we get
= (1300 × 120)/ 100
= ₹ 1560

**11. 40 pens are bought at 4 for ₹ 50 and all of them are sold at 5 for ₹ 80. Find:**
**(i) C.P. of one pen.**
**(ii) S.P. of one pen.**
**(iii) Profit made by selling one pen.**
**(iv) Profit percent made by selling one pen.**
**(v) C.P. of 40 pens.**
**(vi) S.P. of 40 pens.**
**(vii) Profit made by selling 40 pens.**
**(viii) Profit percent made by selling 40 pens.**
**Are the results of parts (iv) and (viii) same?**
**What conclusion do you draw from the above result?**
**Solution:**

(i) C.P of 4 pens = ₹ 50
C.P of 40 pens = (50 × 40)/ 4 = ₹ 500
So the C.P of 1 pen = 500/40 = 25/2 = ₹ 12.50

(ii) S.P of pens = ₹ 80

So the S.P of one pen = 80/5 = ₹ 16

(iii) Profit made by selling one pen = S.P – C.P
Substituting the values
= 16 – 12.50
= ₹ 3.50

(iv) Profit percent made by selling one pen = (profit × 100)/ C.P
Substituting the values
= (3.50 × 100)/ 12.50
Multiplying both numerator and denominator by 100
= (350 × 100)/ 1250
= 28%

(v) C.P of 40 pens = 40 × 12.50 = ₹ 500

(vi) S.P of 40 pens = 40 × 16 = ₹ 640

(vii) Profit made by selling 40 pens = S.P – C.P
Substituting the values
= 640 – 500
= ₹ 140

(viii) Profit percent made by selling 40 pens = (profit × 100)/ C.P
Substituting the values
= (140 × 100)/ 500
= 28%

Yes, the results of (iv) and (viii) are same.
Here we get to know that the profit of equal number of articles remains the same.

**12. The C.P. of 5 identical articles is equal to S.P. of 4 articles. Calculate the profit percent or loss percent made if all the articles bought have been sold.**
**Solution:**

It is given that
C.P of 5 articles = S.P of 4 articles
Consider the C.P of 5 articles = S.P of 4 articles = ₹ 100

C.P of 1 article = 100/5 = ₹ 20
S.P of 1 article = 100/4 = ₹ 25

Profit = S.P – C.P
Substituting the values
= 25 – 20
= ₹ 5

Profit percent = (profit × 100)/ C.P
Substituting the values
= (5 × 100)/ 20

= 25%

**13. The C.P. of 8 pens is same as S.P. of 10 pens. Calculate the profit or loss percent made, if all the pens bought are considered to be sold.**
**Solution:**

Consider C.P of 8 pens = S.P of 10 pens = ₹ 100
C.P of 1 pen = 100.8 = ₹ 12.50
S.P of 1 pen = 100/10 = ₹ 10

Loss = C.P – S.P
Substituting the values
= 12.50 – 10
= ₹ 2.50

Loss percent = (loss × 100)/ C.P
Substituting the values
= (2.50 × 100)/ 12.50
Multiplying both numerator and denominator by 100 × 100
= (250 × 100 × 100)/ (1250 × 100)
= 20%

**14. A certain number of articles are bought at ₹ 450 per dozen and all of them are sold at a profit of 20%.**
**Find the S.P. of:**
**(i) one article**
**(ii) seven articles.**
**Solution:**

It is given that
C.P of 1 dozen articles = ₹ 450
Profit = 20%
S.P = [C.P (100 + profit)]/ 100
Substituting the values
= [450 (100 + 20)]/ 100
So we get
= (450 × 120)/ 100
= ₹ 540

(i) S.P of one article = 540/12 = ₹ 45

(ii) S.P of seven articles = 45 × 7 = ₹ 315

**15. An article is marked 60% above the cost price and sold at 20% discount. Find the profit percent made.**
**Solution:**

Consider the C.P of an article = ₹ 100
M.P of an article = 100 + 60 = ₹ 160
Rate of discount = 20%

S.P = [M.P (100 – Discount percent)]/ 100

Substituting the values
= [160 (100 – 20)]/ 100
So we get
= (160 × 80)/ 100
= ₹ 128

Profit = S.P – C.P
Substituting the values
= 128 – 100
= ₹ 28

Profit percent = (profit × 100)/ C.P
Substituting the values
 = (28 × 100)/ 100
= 28%