Example 4 **The selling price of 10 bananas is equal to the cost price of 12 bananas. Find the gain percent.**

Solution

Let the C.P. of one banana = ₹ x

C.P. of 10 bananas = $10x$

S.P. of 10 bananas = C.P. of 12 bananas = $12x$

Gain = S.P. – C.P. = $12x - 10x = 2x$

$$\text{Profit \%} = \frac{\text{Profit}}{\text{C.P.}} \times 100$$

$$\text{Profit \%} = \frac{2x}{10x} \times 100 = 20\%$$

Thus, the profit = 20%

Example 5 **Lalita bought two jeans at ₹ 750 each. She sold the two jeans, one at a gain of 8% and the other at a loss of 4%. Find the selling price of each jeans and her profit% or loss% in the whole transaction.**

Solution

Cost price of one Jeans = ₹ 750

1st transaction she gains 8%

$$\text{Gain} = \text{gain\%} \times \text{C.P.} = \frac{8}{100} \times 750 = ₹\ 60$$

S.P. = C.P. + profit = 750 + 60 = ₹ 810

2nd transaction she loses 4%

$$\text{Loss} = \text{loss\%} \times \text{C.P.} = \frac{4}{100} \times 750 = ₹\ 30$$

S.P. = C.P. - loss = 750 – 30 = ₹ 720

Total cost price of the two jeans = 750 + 750 = ₹ 1500

Total selling price of the two jeans = 810 + 720 = ₹ 1530

Net profit = 1530 – 1500 = 30

$$\text{profit\%} = \frac{\text{profit}}{\text{C.P.}} \times 100 = \frac{30}{1500} \times 100 = 2\%$$

Thus she makes a 2% profit in the whole transaction.

Exercise 16.2

1. Complete the table.

S.No.	Cost price	Selling price	Profit	Loss	Profit%	Loss %
a.	7282		208			
b.		7894		306		
c.	1540					5%
d.		924			10%	
e.	300	375				
f.	675					92%

2. Find the profit and the profit % if a flower vase is bought at ₹ 360 and sold at a price of ₹ 378.

3. A fruit seller bought 12 kg apples at the rate of ₹ 210 per kg and bought 9 kg pear at the rate of ₹ 200 per kg. He sold all the pear and apple at ₹ 180 kg. Find his gain percent or loss percent.

4. Cost price of 30 books is equal to the selling price of 24 books. Find the gain percent.

5. Mohan buys 120 coconuts at ₹ 40 each and another 150 coconuts at ₹ 30 each. He sells the first 120 coconuts at ₹ 45 each and 150 coconuts at ₹ 22 each. Find his gain% or loss %.

6. Kirti buys a second hand car for ₹ 324000. She spends ₹ 115000 on repairs and sells the car at ₹ 430000. Find her gain % or loss%.

7. Find the cost price of an article when it is sold at a loss of 15 % at ₹ 175.

8. **By selling tickets for a show for ₹ 461 per ticket a profit of ₹ $15\frac{1}{4}$% is made.**
   a. Find the cost price.
   b. What should be the selling price be to get a profit of 30%?

9. A shopkeeper makes a profit of 12% by selling a book for ₹ 336. What is the cost price and the actual profit.

10. A toy seller bought 126 toy cars at ₹ 30 each and another 156 toy cars at ₹ 50 each. At what rate should he sell them to gain 32%. Round up your answer to the nearest rupees.

On selling each of the two watches at ₹ 5000, a dealer neither gains nor loses money. If he had sold one watch at 25% gain, then at what loss% did he sell the other?

Math Lab Activity

Objective : To make the students use and apply the knowledge of profit and loss to real life situations.

Procedure

1. Divide the whole class into 5 to 6 groups with equal number of students.
2. Teacher displays the list on the board.
3. Each group can buy a maximum of 6 items amounting to ₹ 300

List of vegetables and fruits

potatoes	₹ 20 per kg
tomatoes	₹ 25 per kg
brinjal	₹ 40 per kg
cucumber	₹ 35 per kg
carrots	₹ 60 per kg
bananas	₹ 40 per kg
strawberries	₹ 200 per kg
cherries	₹ 350 per kg
lady finger	₹ 30 per kg
onions	₹ 10 per kg

Teacher gives the news items and the students calculate accordingly

News items

1. Sell tomatoes at 2% profit.
2. The cherries are getting spoiled, so sell them at 5% loss.
3. Summer time-sell cucumber at 4% profit.
4. Scarcity of fruits-sell bananas at 10% profit.
5. Fasting days-sell potatoes at double the price.
6. Rains-sell any one vegetable at 5% discount.
7. Scarcity of onions-sell them at a profit of 40%.
8. Brinjals to be sold at 2% loss.

Each group calculates the total money collected taking into account all the profit and the loss on all items

Note: In the end, if any vegetables or fruits are not sold, they will be taken as a loss as they are perishables..

Hand-out for students

S.No.	Item Bought	Quantity Bought	Cost Price Per kg	Total Cost Price	Profit Or Loss%	Selling Price
Total	**6**	**-**		**₹ 300**	**-**	

Recollections

- Cost price (C.P.) – the amount paid to purchase an article.
- Selling price (S.P.) – the amount at which the article is sold.
- Profit = S.P. – C.P. when S.P. > C.P.
- Loss = C.P. – S.P. when C.P. > S.P.
- $\text{Profit\%} = \frac{\text{S.P.} - \text{C.P.}}{\text{C.P.}} \times 100$
- $\text{Loss\%} = \frac{\text{C.P.} - \text{S.P.}}{\text{C.P.}} \times 100$
- Selling price or cost price can be calculated using the formula
- $\text{S.P.} = \frac{(100 + \text{Profit\%})}{100} \times \text{C.P.}$
- $\text{S.P.} = \frac{(100 - \text{Loss\%})}{100} \times \text{C.P.}$
- $\text{C.P.} = \frac{100}{(100 + \text{Profit\%})} \times \text{S.P.}$
- $\text{C.P.} = \frac{100}{(100 - \text{Loss\%})} \times \text{S.P.}$