9 Discount and Commission

Let's recall.

Write the appropriate numbers in the following boxes.

1. $\dfrac{12}{100}$ = ☐ Percent = ☐ %   **2.** 47% = $\dfrac{☐}{☐}$ **3.** 86% = $\dfrac{☐}{☐}$

4. 4% of 300 = 300 × $\dfrac{☐}{☐}$ = ☐   **5.** 15% of 1700 = 1700 × $\dfrac{☐}{☐}$ = ☐

Let's discuss.

MONSOON SALE UP TO 50 %

You may have seen such advertisments. In such a sale, a discount is offered on various goods. Generally in the month of July, sales of clothes are declared. Find and discuss the purpose of such sales.

Let's learn.

Discount

Mr. Suresh owns a saree shop. The details of sale of sarees and profit earned, is given in the following table :

Sale in Month	Cost Price of a saree (In Rs)	Selling Price (In Rs.)	Profit on each saree	Number of sarees sold	Total profit of the month
June	200	250	50	40	50 × 40 = 2000
July (Discount)	200	230	30	100	30 × 100 = 3000

From the above table, it is clear that the discount is given on each saree during the sale in July. The profit on each saree is less but the total sarees sold are more hence overall there is more income for Mr. Suresh.

Each item to be sold has a price tag on it. The price on that tag is the ' **Marked Price**' of the item. Shopkeeper offers discount on the marked price. While selling the object, the actual amount by which he reduces the marked price is called the **'Discount'.**

Hence the selling price = Marked Price - Discount.

Generally discount is given in terms of the percentage. A '20% discount' implies that, an item should be sold by reducing the marked price by 20%. That is if the marked price of an item is Rs. 100 a discount of Rs. 20 is given on it. Hence the selling price of the item will be 100 – 20 = Rs. 80

In such transaction if the discount is x %.

then $\dfrac{x}{100} = \dfrac{\text{Discount}}{\text{Marked Price}}$

$\therefore$ Discount $= \dfrac{\text{Marked Price} \times x}{100}$

For more information:

At present, on line shopping of books, cloths, mobiles etc. is more popular than going to the market.

The companies which sell their goods online, do not have to spend much on shops and managements.

These companies not only give a discount but also give home delivery.

⊟ Solved Examples ⊟

Ex. (1) The marked price of a book is Rs. 360. The shop keeper sold it for Rs. 306. How much percent discount did the shopkeeper give ?

Solution: Marked Price = ₹ 360, Selling Price = ₹ 306.

$\therefore$ Discount = 360 – 306 = ₹ 54.

On marked price of Rs. 360, the discount is 54 rupees.

$\therefore$ if the marked price is ₹ 100, let the discount be x.

$\dfrac{\text{Discount}}{\text{Marked price}} = \dfrac{x}{100} \quad \therefore \dfrac{54}{360} = \dfrac{x}{100} \quad \therefore \quad x = \dfrac{54 \times 100}{360} = 15$

$\therefore$ 15% discount is given on the book.

Ex. (2) The marked price of a chair is Rs. 1200. A 10% discount is given on it. Calculate the discount and selling price of the chair.

Solution : | **Method I**

Marked price = ₹ 1200, discount = 10%

Let us find the ratio $\dfrac{\text{discount}}{\text{marked price}}$

Let us assume that, discount obtained is ₹ x on the marked price of a chair.

$$\therefore \quad \frac{x}{1200} = \frac{10}{100}$$

$$x = \frac{10}{100} \times 1200$$

$$x = 120$$

Discount = ₹ 120.

Selling Price = Marked Price − Discount

$$= 1200 - 120$$

$$= 1080$$

Selling Price of a chair is ₹ 1080

Method II

10% discount is given on marked price. Therefore, if marked price is ₹ 100, then selling price is ₹ 90.

∴ when marked price is 1200, let the selling price be ₹ x.

$$\therefore \quad \frac{x}{1200} = \frac{90}{100}$$

$$\therefore \quad x = \frac{90}{100} \times \frac{1200}{1}$$

$$\therefore \quad x = 1080$$

Selling price of a chair is 1080 rupees.

∴ discount = 1200 − 1080

$$= ₹\ 120.$$

Ex. (3) After giving a discount of 20%, a saree is sold for Rs. 1120. Find the marked price of the saree.

Solution : Suppose, the marked price of the saree was Rs. 100. The discount given was 20%, therefore the customer got it for 100 − 20 = 80 rupees. That is, if the selling price was 80 rupees, the marked price was 100 rupees. Let us assume that the actual marked price of the saree, which was sold for Rs. 1120, was x.

$$\therefore \quad \frac{80}{100} = \frac{1120}{x}$$

$$\therefore \quad x = \frac{1120 \times 100}{80}$$

$$= 1400$$

∴ marked price of the saree was 1400 rupees.

Ex. **(4)** A shopkeeper decides to sell a certain item at a certain price. He marks the price of the item, by increasing the decided price by 30%. While selling the item, he offers 20% discount. Find how many percent he gets more on the decided price.

Solution: The percentage increase in price and profit depends upon the decided price of the item. By assuming decided price to be Rs. 100 the solution of the problem will be easy.

∴ let the decided price be ₹ 100.

Therefore, he marks the price as ₹ 130

∴ Marked price = ₹ 130

Discount given = 20% of 130 = $130 \times \dfrac{20}{100}$ = ₹ 26

∴ selling price = 130 − 26 = ₹ 104

∴ if the decided price is ₹ 100, he get ₹ 104.

Hence he gets 4% more than his decided price.

Ex. **(5)** On a certain item, a shopkeeper gives 8% discount to the customer and still he gets 15% profit. If the marked price of the item is Rs. 1750, then what is the cost price of the item for the shopkeeper ?

Solution : Marked price of the item = ₹ 1750, discount is 8%

∴ total discount = $1750 \times \dfrac{8}{100}$ = ₹ 140

∴ selling price of the item = 1750 − 140 = ₹ 1610

Profit is 15%. Hence if the cost price is Rs. 100 then selling price is Rs.115.

That is, when selling price is Rs. 115, cost price is Rs. 100. So when the selling price is Rs.1610, let the cost price be Rs. x.

∴ $\dfrac{x}{100} = \dfrac{1610}{115}$ ∴ $x = \dfrac{1610 \times 100}{115} = 1400$

∴ cost price of the item = ₹ 1400.

Now I know.

- Selling price = Marked price − Discount

- If the percentage of discount is x, then $\dfrac{x}{100} = \dfrac{\text{Discount given}}{\text{Marked price}}$

1. If marked price = ₹ 1700, selling price = ₹ 1540 then find the discount.
2. If marked price = ₹ 990 and percentage of discount is 10, then find the selling price.
3. If selling price = ₹ 900. Discount is 20 %, then find the marked price.
4. The marked price of the fan is 3000 rupees. Shopkeeper gave 12% discount on it. Find the total discount and selling price of the fan.
5. The marked price of a mixer is 2300 rupees. A customer purchased it for Rs.1955. Find percentage of discount offered to the customer.
6. A shopkeeper gives 11% discount on a television set, hence the cost price of it is Rs. 22,250. Then find the marked price of the television set.
7. After offering discount of 10% on marked price, a customer gets total discount of 17 rupees. To find the cost price for the customer, fill in the following boxes with appropriate numbers and complete the activity.

   Suppose, marked price of the item = 100 rupees

   Therefore, for customer that item costs $\boxed{}$ – $\boxed{}$ = 90 rupees

   Hence, when the discount is $\boxed{}$ then the selling price is $\boxed{}$ rupees.

   Suppose when the discount is $\boxed{}$ rupees, the selling price is x rupees.

   $\therefore \dfrac{x}{\boxed{}} = \dfrac{\boxed{}}{\boxed{}}$ $\therefore x = \dfrac{\boxed{} \times \boxed{}}{\boxed{}} = \boxed{}$

   $\therefore$ the customer will get the item for 153 rupees.
8. A shopkeeper decides to sell a certain item at a certain price. He tags the price on the item by increasing the decided price by 25%. While selling the item, he offers 20% discount. Find how many more or less percent he gets on the decided price.

Let's learn.

Commission

Sometimes it is not possible for a company to sell their manufactured goods. In such a case the company assigns responsiblity of selling the goods. (For example, books, cloth, soap etc.) The person gets some remuneration for the service. The remuneration is called **'Commission'**. The person who provides such type of service

is called a **'Commission agent'**. Commission is decided in terms of percentage. The rates of commission vary according to the types of goods.

If owners of land, house, cattle etc. want to sell the belongings, it is not easy for them to find such customers. In such a situation, the person who brings the seller and the buyer together is known as a 'mediator' or an 'agent' or a 'commission agent'.

Foodgrains, vegetables, fruits and flowers are also sold with the help of a mediator or an 'agent'. For the job the agent gets commission. The commission is received from the seller or the buyer or from both.

Solved Examples

Ex. **(1)** Shripati sold a land for Rs. 2,50,000 to Mr. Sadashiv through a broker. Broker received 2% brokerage from both. Find the total brokerage received by the broker.

Solution: Price of the land = ₹ 2,50,000

$$\therefore \text{ brokerage } = 250000 \times \frac{2}{100} = ₹ 5000$$

brokerage received from both, buyer and seller .

∴ total brokerage = 5000 + 5000 = 10000 rupees.

Ex. (2) Sukhdeo sold 10 quintal of wheat at Rs. 4050 per quintal through an agent. The commission was paid at the rate of 1%. Find the amount Sukhdeo received after selling the wheat.

Solution: Selling price of wheat = 10 × 4050 = ₹ 40500 ;

the commission rate = 1%

$$\therefore \text{ commission } = 40500 \times \frac{1}{100} = ₹ 405$$

∴ amount received by selling wheat

= selling price of wheat − commission

= 40500 − 405 = ₹ 40,095

After selling the wheat, Sukhadeo received 40,095 rupees.

Rebate

The organisations like Khadi - Gramodyog, Handloom shops, Handicraft selling centers, Bachat groups etc. give attractive discounts on special occassions. For example, at the time of Gandhi - Jayanti, the khadi textile goods are discounted for promoting khadi. At such times the amount of discount is compensated by the goverment. This monetary compensation is known as 'Rebate'. Hence rebate is also a type of discount.

The individuals having income upto certain limit, also receive some discount on their payable income tax. This discount is also known as 'rebate'.

Solved Examples

Ex. From a 'Handloom stores', Sudhir purchased the following items:

(i) 2 bedsheets, Rs. 375 each, (ii) 2 floormats, Rs. 525 each.

On the purchase he received a rebate of 15 percent. Find the total rebate. How much should Sudhir pay to the shopkeeper?

Solution : Cost of 2 bedsheets = 2 × 375 = ₹ 750.

Cost of 2 floormats = 2 × 525 = ₹ 1050.

Total cost of items purchased = 750 + 1050 = ₹ 1800

Total rebate given on marked price = $1800 \times \dfrac{15}{100}$ = ₹ 270

∴ Sudhir has to pay = 1800 − 270 = ₹ 1530

Practice Set 9.2

1. John sold books worth rupees 4500 for a publisher. For this he received 15 % commission. Complete the following activity to find the total commission John obtained.

   Selling price of books = ☐   Rate of commission = ☐

   Commission obtained = $\dfrac{☐}{☐}$ × ☐   ∴ Commission = ☐ rupees

2. Rafique sold flowers worth ₹ 15,000 by giving 4% commission to the agent. Find the commission he paid. Find the amount received by Rafique.

3. A farmer sold foodgrains for 9200 rupees through an agent. The rate of commission was 2%. How much amount did the agent get?

4. Umatai purchased following items from a Khadi - Bhandar.

(i) 3 sarees for 560 rupees each.

(ii) 6 bottles of honey for 90 rupees each.

On the purchase, she received a rebate of 12%. How much total amount did Umatai pay ?

5. Use the given information and fill in the boxes with suitable numbers.

Smt. Deepanjali purchased a house for ₹ 7,50,000 from Smt. Leelaben through an agent. Agent has charged 2 % brokerage from both of them.

(1) Smt. Deepanjali paid $\boxed{} \times \dfrac{\boxed{}}{\boxed{}} = ₹ \boxed{}$ brokerage for purchasing the house.

(2) Smt. Leelaben paid brokerage of ₹ $\boxed{}$.

(3) Total brokerage received by the agent is ₹ $\boxed{}$.

(4) The cost of house Smt. Deepanjali paid is ₹ $\boxed{}$.

(5) The selling price of house for Smt. Leelaben is ₹ $\boxed{}$.

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Answers

Practice Set 9.1

1. ₹ 160   **2.** ₹ 891   **3.** ₹ 1125

4. Discount ₹ 360, Selling Price ₹ 2640   **5.** 15%   **6.** ₹ 25,000   **8.** 0 %.

Practice Set 9.2

**2.** Discount ₹ 600, amount ₹ 14400   **3.** ₹ 184   **4.** ₹ 1953.60

Miscellaneous Exercise 1

1. Choose the correct alternative answer for each of the following questions.

   (1) In ▢ PQRS, $m\angle P = m\angle R = 108°$, $m\angle Q = m\angle S = 72°$. State which pair of sides of those given below is parallel.

      (A) Side PQ and side QR

      (B) side PQ and side SR

      (C) side SR and side SP

      (D) side PS and side PQ

   (2) Read the following statements and choose the correct alternative from those given below them.

      (i) Diagonals of a rectangle are perpendicular bisectors of each other.

      (ii) Diagonals of a rhombus are perpendicular bisectors of each other.

      (iii) Diagonals of a parallelogram are perpendicular bisectors of each other.

      (iv) Diagonals of a kite bisect each other.

      (A) Statement (ii) and (iii) are true   (B) Only statement (ii) is true

      (C) Statements (ii) and (iv) are true   (D) Statements (i), (iii) and (iv) are true.

   (3) If $19^3 = 6859$, find $\sqrt[3]{0.006859}$.

      (A) 1.9   (B) 19   (C) 0.019   (D) 0.19

2. Find the cube roots of the following numbers.

   (1) 5832   (2) 4096

3. $m \propto n$, $n = 15$ when $m = 25$. Hence

   (1) Find m when $n = 87$ (2) Find n when $m = 155$

4. y varies inversely with x. If $y = 30$ when $x = 12$, find

   (1) y when $x = 15$ (2) x when $y = 18$

5. Draw a line l. Draw a line parallel to line l at a distance of 3.5 cm.

6. Fill in the blanks in the following statement.

   The number $(256)^{\frac{5}{7}}$ is .... th root of .... th power of ....

7. Expand.

   (1) $(5x-7)(5x-9)$ (2) $(2x-3y)^3$ (3) $\left(a + \dfrac{1}{2}\right)^3$

8. Draw an obtuse angled triangle. Draw all of its medians and show their point of concurrence.

9. Draw Δ ABC such that l (BC) = 5.5 cm, m ∠ABC = 90°, l (AB) = 4 cm. Show the orthocentre of the triangle.

10. Identify the variation and solve. It takes 5 hours to travel from one town to the other if speed of the bus is 48 km/hr. If the speed of the bus is reduced by 8 km/hr, how much time will it take for the same travel ?

11. Seg AD and seg BE are medians of Δ ABC and point G is the centroid. If l(AG) = 5 cm, find l(GD). If l(GE) = 2 cm, find l(BE).

12. Convert the following rational numbers into decimal form.

(1) $\frac{8}{13}$ (2) $\frac{11}{7}$ (3) $\frac{5}{16}$ (4) $\frac{7}{9}$

13. Factorise.

(1) $2y^2 - 11y + 5$ (2) $x^2 - 2x - 80$ (3) $3x^2 - 4x + 1$

14. The marked price of a T. V. Set is ₹ 50000. The shop keeper sold it at 15% discount. Find the price of it for the customer.

15. Rajabhau sold his flat to Vasantrao for ₹ 88,00,000 through an agent. The agent charged 2 % commission for both of them. Find how much commission the agent got.

16. Draw a parallelogram ABCD. such that l(DC) = 5.5 cm, m∠D = 45°, l(AD) = 4 cm.

17. In the figure, line l ∥ line m and line p ∥ line q. Find the measures of ∠a, ∠b, ∠c and ∠d.
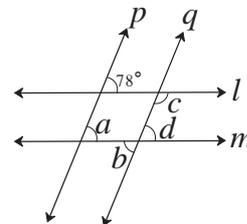
Answers

1. (i) B (ii) B (iii) D   **2.** (1)18 (2) 16   **3.** (1) 145 (2) 93

4. (1) 24 (2) 20   **6.** 7, 5, 256 in order

7. (1) $25x^2 - 80x + 63$ (2) $8x^3 - 36x^2y + 54xy^2 - 27y^3$ (3) $a^3 + \frac{3a^2}{2} + \frac{3a}{4} + \frac{1}{8}$

10. Inverse, 6 hrs   **11.** l(GD) = 2.5 cm, l(BE)= 6 cm

12. (1) $0.\overline{615384}$ (2) $1.\overline{571428}$ (3) 0.3125 (4) $0.\dot{7}$

13. (1) $(y-5)(2y-1)$ (2) $(x-10)(x+8)$ (3) $(x-1)(3x-1)$

14. ₹ 42500   **15.** ₹ 352000   **17.** 78°, 78°, 102°, 78°