

CLASS 8 · HOTS · OLYMPIAD PREPARATION · SHORT NOTES

Chapter 5: HOTS: Fractions in Disguise, Percentages (Class 8)

Topic-wise short notes with solved examples

Higher order thinking questions on percentages for Class 8: percentage of a quantity, successive changes, profit and loss, discount with tax and compound growth, each with a full solution.

1 Solved HOTS questions

- $p\%$ of N is $\frac{p}{100} \times N$. A rise of $p\%$ multiplies by $\left(1 + \frac{p}{100}\right)$ and a fall of $p\%$ multiplies by $\left(1 - \frac{p}{100}\right)$. Profit, loss and percentage change are worked out on the **original** value; a discount is worked out on the **marked price**.

Example 1.1 Find 35% of 240.

SOLUTION

$$\frac{35}{100} \times 240 = 0.35 \times 240.$$

84

Example 1.2 A price of Rs 800 is raised by 25% and then lowered by 20%. Find the final price.

SOLUTION

After the rise: $800 \times 1.25 = 1000$.

After the fall: $1000 \times 0.8 = 800$.

Rs 800 (the two changes cancel exactly)

Example 1.3 A shopkeeper buys an article for Rs 750 and sells it for Rs 900. Find his profit percent.

SOLUTION

Profit = $900 - 750 = 150$.

Profit percent = $\frac{150}{750} \times 100$.

20%

Example 1.4 An article is marked at Rs 1200. A discount of 15% is given, and then tax of 5% is charged on the discounted price. Find the amount to be paid.

SOLUTION

Discount = $0.15 \times 1200 = 180$, so the discounted price is Rs 1020.

Tax = $0.05 \times 1020 = 51$.

Amount = $1020 + 51$.

Rs 1071

Example 1.5 Rs 10 000 grows at 10% per year, compounded yearly. Find the amount after 2 years.

SOLUTION

After year 1: $10\,000 \times 1.1 = 11\,000$.

After year 2: $11\,000 \times 1.1 = 12\,100$.

Rs 12 100