

Goal: I will be able to find the percent increase and decrease of a number, discount, mark-up, profit, and commission.

Tool Bag
Formulas, equations,
Vocabulary, etc.



Here's How...Notes & Examples

Which of the following stocks had the best increase?

IBM starts at \$100 per share and gains \$10.



Front Line starts at \$4 per share and gains \$1.

How can we tell? Talk to your partner to see which one you think did the best.

Percent Change

$$\text{Percent change} = \frac{\text{amount of change}}{\text{original amount}}$$

Example #1

The first week, your stock is \$50 per share. The next week, your stock is \$55 per share. What is the percent change?

$$\begin{aligned}\text{Percent change} &= \frac{\text{amount of change}}{\text{original amount}} \\ &= \frac{55-50}{50} \\ &= \frac{5}{50} \\ &= 0.1 \\ &= 10\%\end{aligned}$$

A price from \$50 to \$55 is a 10% increase.

You Try

You have 55 Skittles and you eat some so you have 44 left.
What is the percent change?

$$\begin{aligned}\text{Percent change} &= \frac{\text{amount of change}}{\text{original amount}} \\ &= \frac{55-44}{55} \\ &= \frac{11}{55} \\ &= 0.2 \\ &= 20\%\end{aligned}$$



From 55 Skittles to 44 Skittles is a 20% decrease.

Discount Mark-Up

Example #3

**Method 1 -
Multiply & Subtract**

$$(12)(0.15) = 1.80$$
$$12 - 1.80 = 10.20$$

Find 15% of \$12.

Subtract \$1.80 from \$12

**Method 2 -
Subtract & Multiply**

$$100\% - 15\% = 85\%$$
$$12(0.85) = 10.20$$

Find the percent students pay

Find 85% of \$12

the difference between the regular price and sale price.
the difference between the whole sale price and the retail price.

Movie tickets cost \$12. Children 12 and under get a 15% discount. How much is a child ticket?

You Try



You go to the Apple store to buy a new iPhone that costs \$450. You have a special offer coupon that gives you 20% off. How much do you pay?

Example #4

A street vendor buys a Warriors jerseys at a wholesale price of \$96. The retail price is marked up by 75%. What is the selling price?

**Method 1 -
Multiply & Add**

$$(96)(0.75) = 72$$
$$96 + 72 = 168$$

Find 75% of \$96.
Add \$72 to \$96

**Method 2 -
Add & Multiply**

$$100\% + 75\% = 175\%$$
$$96(1.75) = 168$$

Find the total percent of the price
Find 175% of \$96

You Try

What is the retail price on computer whose wholesale price is \$650 and is marked up 30%?



Commission

A fee paid to a person who makes a sale.

Commission Rate

The percent charged for a commission.

$$\text{commission} = \text{commission rate} \cdot \text{sales}$$

Example #5

Rocky gets paid a 6% commission for every car he sells.
How much does Rocky make when he sells a car for \$22,000?

$$\text{commission} = 6\% \cdot \$22,000$$

$$c = 0.06 \cdot \$22,000$$

$$c = \$1,320$$

Sales Tax

The tax on the sale of an item or service.

$$\text{tax} = \text{tax rate} \cdot \text{price}$$

Example #6

Sales tax is 9%. What is the tax for an item that is \$75?

$$\text{tax} = 9\% \cdot \$75$$

$$= 0.09 \cdot \$75$$

$$= \$6.75$$



You Try



A necklace sells for \$800. The seller gets a commission of 12% and the sales tax is 8%. How much commission does the seller receive, and what is the cost of the necklace?

Profit

The difference between the income and the expenses.

$$\text{profit} = \text{income} - \text{expenses}$$

Example #7

A restaurant sells \$48,000 in food one month. The expenses (food, salaries, rent, etc.) are \$42,000. What was the profit, and what was the percent profit?

$$\begin{aligned}\text{profit} &= 48,000 - 42,000 \\ &= \$6,000\end{aligned}$$

The profit was \$6,000 for the month.

Part 2 - Percent Profit

$$\text{profit} = \text{percent profit} \cdot \text{sales}$$

$$6,000 = \text{percent profit} \cdot 48,000$$

$$\frac{\cancel{6,000}}{\cancel{48,000}} = \frac{\text{percent profit} \cdot \cancel{48,000}}{\cancel{48,000}}$$

$$\frac{1}{8} = \text{percent profit}$$

$$0.125 = \text{percent profit}$$

$$12.5\% = \text{percent profit}$$

The restaurant made a 12.5% profit for the month.

You Try

A school fund raiser earns 8% profit on the magazines it sells. They sold \$14,500 worth of magazines. How much profit did they earn?