

APPLICATIONS OF PERCENT

Applications of percents is a term that refers to the different ways that percents can be used.

- The **percent of change** refers to the percent an amount either increases or decreases based on the previous amounts or numbers.
 - The percent of change can be used when determining the percent increase of the cost of any item over time, for example movie tickets, clothing or food.



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Estimate situations, the exact percentage is not needed, but just an estimate. Recognizing what is the approximate percent of a total can be very useful in everyday life.



How to use applications of percent

Percent increase or decrease can be found by using the formula: percent of change = actual change/original amount. The change is either an increase, if the amounts went up or a decrease if the amounts went down.

If a number changes from 33 to 89, the percent of **increase** would be:

$$\text{Percent of increase} = (89 - 33) \div 33 = 56 \div 33 \approx 1.6969 \approx 170\%$$

- When a number **decreases**, the percent of decrease is found using the same formula.

If a number changes from 75 to 55, the percent of decrease would be:



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Per %
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 If a could be:
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 • T e used.
 T s is also
 t
 For customer
 for \$22,500, what is the percent of markup?

$$\text{Markup} = 22,500/15,000 = x/100 \rightarrow (2,250,000) = 15000x \rightarrow x = 150\%$$



Simple interest is also calculated using percents. The interest equation, $I = P \cdot r \cdot t$, is used to find the simple interest when given the principle, rate and time. If interest is given, along with two other values, such as rate or time, inverse operations can be used to solve for the missing value.

For example, how long should \$1000 be in an account at a rate of 5% in order to earn \$200 in interest?

Ex. $I = P \cdot r \cdot t \rightarrow 200 = 1000 \cdot 5\% \cdot t \rightarrow 200 = (1000)(.05)t \rightarrow 200 = 50t \rightarrow 200/50 = t \rightarrow 4 = t$

Since $t = 4$, it means that the money should be in the account for 4 years in order to earn \$200 interest.

Estimating with percents is another way to use percents.

For
It is
69.9
off i

sts \$69.99.
nce 10% of
out \$21



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Try This!

1. What is the **percent increase** of a gallon of milk that was originally \$1.79 and is now \$2.29?
2. What is the **percent decrease** in the value of a boat that originally cost \$12,000 and now sells for \$8,000?
3. What is the **percent discount** on a desk that originally cost \$99 and now costs \$59?

4. I
F

5. V



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6. What is the missing value using, $I = P \cdot r \cdot t$:

$$I = \$500, r = 8\%, t = 2 \text{ years}$$

$$I = \$50, P = \$2000, t = 1 \text{ year}$$

7. If a computer costs \$899 and is 23% off, what is the **estimated discount**?