

Name _____

Pre-Algebra Notes
Week 9: Lessons 7.4 and 7.5

The Percent Equation (7.4)

The Percent Equation

$$\text{"a is p percent of b"} \qquad a = p\% \cdot b$$

a- part

b- base (whole)

p%- percent

Example

1. On June 14, 2002, the distance between Earth and the moon was about 375,000 km. On that day, a traveling asteroid missed Earth by about 32% of that distance. How far away from Earth was the asteroid at that time?

Extra Practice

Use the percent equation to answer the question

1. What number is 16% of 75

2. What number is 89% of 110

2. Finding a Commission

A car salesperson earns a 6.5% commission on every car sold. The salesperson sells a car for \$21,800. What is the commission?

Extra Practice

Find the commission if a car is sold for \$23,000

3. Finding the Percent

What percent of 25 is 60?

4. Finding a Base

Your friend paid \$9 for a movie ticket. This amount was 72% of the total amount your friend spent at the theater. How much money did your friend spend?

Extra Practice

What percent of 48 is 45?

SUMMARY Methods for Solving a Percent Problem

To find the percent of a number:

- Write the percent as a fraction.
- Write the percent as a decimal.

Example:

$$20\% \text{ of } 35 = \frac{1}{5} \cdot 35 = 7$$
$$5\% \text{ of } 16 = 0.05 \cdot 16 = 0.8$$

To find the percent $p\%$, the base b , or a part a of the base:

- Use the proportion
- Use the percent equation

$$\frac{a}{b} = \frac{p}{100}$$
$$a = p\% \cdot b$$

Example:

21 is 35% of what number?

$$\frac{21}{b} = \frac{35}{100}$$
$$60 = b$$

What percent of 250 is 40?

$$40 = p\% \cdot 250$$
$$16\% = p\%$$

Percent of Change (7.5)

Math Vocab.

1. percent of change- how much a quantity _____ or _____ with respect to the original amount
2. percent of increase- when the _____ amount is _____ than the original amount
3. percent of decrease- when the _____ amount is _____ than the original amount

Percent of Change

$$p\% = \frac{\text{amount of increase or decrease}}{\text{original amount}}$$

Examples

1. Finding a Percent of Increase

The International BALloon Fiesta takes place every year in Albuquerque, New Mexico. In 1999, 903 balloons participated. In 2000, 1019 balloons participated. By about what percent did the number of balloons increase from 1999 to 2000?

$$p\% = \frac{\text{amount of increase}}{\text{original amount}}$$

Extra Practice

Find the percent of increase

Original: 20

New : 25

2. Finding the Percent of Decrease

Find the percent of decrease from 512 to 320

$$p\% = \frac{\text{amount of decrease}}{\text{original amount}}$$

Extra Practice

Find the percent of decrease

Original: 20

New: 15

Finding the new amount:

1. Multiply the % change by the original amount to find the amount of change
2. Increase and decrease the original amount by the amount of change

3. Using a Percent of Increase

There were about 198,000 spectators at an action sports event in 1995. The number of spectators increased by about 12% from 1995 to 2002. About how many spectators were there in 2002?

Extra Practice

Decrease 85 by 28%

Another Way to Find a New Amount

- For a $p\%$ increase, multiply the original amount by $(100\% + p\%)$
- For a $p\%$ decrease, multiply the original amount by $(100\% - p\%)$

4. Finding a New Amount

In 1983, the average price of an audio CD was \$21.50. By 2000, the average price had decreased by 34.8%. What was the average price of a CD in 2000?