

Name: _____

Notes

Algebra Section 3.7

Pages 176-181



Date: _____

Goal: "I will solve percent problems"

Percent as a Proportion:

$$\frac{\text{is}}{\text{of}} = \frac{\%}{100}$$

and

$$\frac{\text{part}}{\text{whole}} = \frac{\%}{100}$$

and

$$\frac{\text{change}}{\text{original}} = \frac{\%}{100}$$



Examples:

What number is 30% of 90?

$$\frac{\text{is}}{\text{of}} = \frac{\%}{100} \quad \frac{x}{90} = \frac{30}{100}$$

Solve: $100x = 2700$
 $x = 27$

What percent of 136 is 51?

$$\frac{\text{is}}{\text{of}} = \frac{\%}{100} \quad \frac{51}{136} = \frac{x}{100}$$

$$\frac{51}{136} = \frac{x}{100}$$

$$5100 = 136x$$

$$37.5 = x \quad 37.5\%$$

Try These:

Ex: 20 is 12.5% of what number?

$$\frac{20}{x} = \frac{12.5}{100}$$

$$x = 160$$

Ex: What percent of 56 is 49?

$$\frac{49}{56} = \frac{x}{100}$$

$$x = 87.5\%$$

Ex: What percent of 55 is 11?

$$\frac{11}{55} = \frac{x}{100}$$

$$x = 20\%$$

Ex: What number is 45% of 92?

$$\frac{x}{92} = \frac{45}{100}$$

$$x = 41.4$$

Ex: What number is 140% of 50?

$$\frac{x}{50} = \frac{140}{100}$$

$$x = 70$$

Ex: What number is 12% of 85?

$$\frac{x}{85} = \frac{12}{100}$$

$$x = 10.2$$

Word Problems:

Ex: A survey asked 220 students to name their favorite pasta dish. Find the percent of students who chose the given dish.

a) Mac N' Cheese

$$\frac{33}{220} = \frac{x}{100} \quad x = 15\%$$

b) Lasagna

$$\frac{40}{220} = \frac{x}{100} \quad x = 18\%$$

Type	# Students
Spaghetti	83
Lasagna	40
Mac N' Cheese	33
Fettuccine Alfredo	22
Baked Ziti	16
Pasta Primavera	15
Other	11

Ex: 30% of the school is wearing hats today. If 120 students are wearing hats, how many students are in the school?

$$\frac{30}{100} = \frac{120}{x} \quad 400 \text{ students}$$

Ex: There are 10,240 people sitting in preferred seating. This is 25% of the stadium's capacity. What is the stadium's capacity?

$$\frac{25}{100} = \frac{10240}{x} \quad 40,960 \text{ seats}$$

Ex: 68 of my students earned higher than a B on their report card. That is 80% of my students. How many students do I have?

$$\frac{80}{100} = \frac{68}{x}$$

80%

Percent Change:

To find percent of change: $\frac{\text{change}}{\text{original}} = \frac{\%}{100}$

To find the change: subtract

The original is what happened first

You must include increase or decrease in your final answer.

Ex: A shirt was put on sale. Its original price was \$35 and it was sold for \$30. What was the percent of the sale?

$$\frac{5}{35} = \frac{x}{100} \quad x = 14 \quad 14\% \text{ decrease}$$

Ex: A store buys jeans for \$20 and sells them for \$35 each. Find the percent of the mark-up.

$$\frac{15}{20} = \frac{x}{100} \quad x = 75 \quad 75\% \text{ increase}$$

Ex: Find the percent of change if a school's enrollment was 675 students last year and is 725 students this year.

$$\frac{50}{675} = \frac{x}{100} \quad x = 7 \quad 7\% \text{ increase}$$

Ex: A house sold for \$250,000 in 2000. Last year it sold for \$360,000. What was the percent change?

$$\frac{11000}{250000} = \frac{x}{100} \quad x = 4.4 \quad 4.4\% \text{ increase}$$