7.4 The Percent Equation

Students will be able to use equations to solve percent problems.

The Percent Equation

You can represent "a is p percent of b" using the equation.

times

$$a = p\% \cdot b$$

where **a** is a part of the base **b** and **p%** is the percent.

Finding a Part of a Base

$$a = p\% \cdot b$$

What number is 16% of 75?

$x = .16 \cdot 75$

$x = 12$

What number is 38% of 300?

114

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?

$.065 \cdot 21,800$

$\$1,417$

Finding a Commission

Elijah is a shoe salesman at Scheels. He earns $350 per week plus an 8% commission on his shoe sales. He sold $550 last week. What was his total pay for the week?

$\dfrac{350}{40} = \$8.75$

$350 + \$44 = 550 \cdot .08$

$\$394$

Finding a Percent

$$a = p\% \cdot b$$

What percent of 16 is 4?

$\dfrac{16x}{16} = \dfrac{4}{16}$　$x = .25$　25%

What percent of 368 is 150?

$x \cdot 368 = 150$　$.4076\ldots$　40.8%

What percent of 25 is 60?

$\dfrac{25x}{25} = \dfrac{60}{25}$　240%

Finding a Base

27 is 7.5% of what number?

$$2.025 \qquad 27 = .075 \cdot x$$

12 is 152% of what number?

$$\frac{12}{1.52} = \frac{1.52 \cdot x}{1.52} \qquad x = 7.9$$

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?

$$\frac{9}{.72} = \frac{.72 \, x}{.72}$$

$$x = \$12.50$$

A hotel charges a couple $1500 to hold a small wedding ceremony in the hotel garden. The couple must pay the hotel 12.5% of the charge as a deposit. How much is the deposit?

$$1500 \cdot .125 =$$

$$\$187.50$$

A tourist dining at an outdoor restaurant in the Caribbean counts 6 iguanas in cages on the restaurant's patio. A waitress informs the tourist that these 6 iguanas represent 30% of the iguanas living on the restaurant property. How many iguanas are on the property?

$$\frac{.30x}{.3} = \frac{6}{.3}$$

$$x = 20 \text{ iguanas}$$

Methods for Solving a Percent Problem

To find the percent of a number:

1. Write the percent as a fraction

25% of 50

$$\frac{1}{4} = \frac{x}{50} \qquad \frac{4x = 50}{4} \qquad x = 12.5$$

2. Write the percent as a decimal

11% of 72

$$.11 \cdot 72 = 7.92$$

To find the percent, base, or part of the base:

1. Use the proportion

21 is 43% of what number?

$$\frac{21}{b} = \frac{43}{100} \qquad \frac{2100 = 43b}{43} \qquad b = 48.8$$

2. Use the percent equation

What percent of 550 is 110?

$$x \cdot 550 = 110$$
$$\frac{x \cdot 550}{550} = \frac{110}{550}$$
$$x = 20\%$$

Homework

Pg. 363-365

#3-7, 8-22 evens, 30

Quiz Tomorrow