Name _____ Date _____ Class _____

Interactive Study Guide

LESSON 6-4 *Solving Equations Containing Percents*

To solve equations containing percents, use either a proportion or an equation. For example: *What percent of 60 is 12?*

Proportion

$$\frac{part \, \rightarrow}{whole \, \rightarrow} \frac{n}{100} = \frac{12}{60} \frac{\leftarrow \, part}{\leftarrow \, whole}$$

$$\frac{n}{100} = \frac{12}{60}$$

$$n = 20\%$$

Equation

What percent of 60 is 12?

$$n \cdot 60 = 12$$

$$n = 20\%$$

Solving Using Proportions

Solve. 18 is what percent of 60?

$$\underline{} = \frac{18}{60} \qquad \frac{18}{60} \text{ is equal to what fraction?}$$

$$\underline{} \cdot 60 = 100 \cdot \underline{} \qquad \text{Write the cross products.}$$

$$60n = \underline{} \qquad \text{Multiply.}$$

$$\frac{60n}{\underline{}} = \frac{1,800}{\underline{}} \qquad \text{Divide each side by the same number to isolate } n.$$

$$n = \underline{}$$

18 is _____ of 60.

Solving Using Equations

Solve. 72 is 20% of what number?

$$72 = \underline{} \cdot \underline{} \qquad \text{What do you set 72 equal to?}$$

$$72 = \underline{} \cdot n \qquad \text{Write 20\% as a decimal.}$$

$$\frac{72}{\underline{}} = \frac{0.2 \cdot n}{\underline{}} \qquad \text{Divide each side by the same number to isolate } n.$$

$$\underline{} = n$$

72 is 20% of _____.

Demographics Application

Of the 1,500 international students attending the University of Miami in 2000–2001, 315 of them are from Asia. What percent of the international students are Asian?

$$n \cdot \underline{} = \underline{} \qquad \text{Write an equation. What percent of 1,500 is 315?}$$

$$\frac{n \cdot 1,500}{\underline{}} = \frac{315}{\underline{}} \qquad \text{Divide each side by the same number to isolate } n.$$

$$n = 0.21 = \underline{} \qquad \text{Find the equivalent percent of the decimal.}$$

Of the 1,500 international students, _____ are Asian.

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Solve. Round answers to the nearest tenth, if necessary.

1. 50 is 40% of what number?   **2.** 12 is 25% of what number?

_____   _____

3. 18 is what percent of 60?   **4.** 12 is what percent of 96?

_____   _____

5. 4% of what number is 25?   **6.** 80% of what number is 160?

_____   _____

7. What percent of 55 is 22?   **8.** What percent of 75 is 6?

_____   _____

9. 15 is 30% of what number?   **10.** 8% of what number is 2?

_____   _____

11. 7 is what percent of 105?   **12.** 24 is 40% of what number?

_____   _____

13. 10% of what number is 14?   **14.** 16 is what percent of 200?

_____   _____

15. What percent of 32 is 4?   **16.** What percent of 150 is 60?

_____   _____

17. 1% of what number is 11?   **18.** 20% of what number is 14?

_____   _____

19. Kylie works part-time at a greenhouse. She spends 7 hours
a week watering plants and 9 hours a week transplanting
seedlings. She also spends 4 hours a week filing invoices.
What percent of her time is spent watering plants?

_____

20. The Perez family saves 3% of their monthly income for their
summer vacation. This past year, they saved $774 for their
vacation. What is their monthly income?

_____

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