



Vocabulary

Review

1. Circle each *rational* number.

$\sqrt{5}$

$\frac{19}{100}$

$\sqrt{64}$

-3.89

Write an *equivalent fraction* with a denominator of 100.

2. $\frac{4}{5}$

3. $\frac{7}{25}$

4. $\frac{8}{50}$

Vocabulary Builder

percent (noun) pur SENT

Related Words: cents (noun), century (noun), centimeter (noun)

Definition: A **percent** is a ratio that compares a number to 100.

Word Origin: **per** means “for every”; **-cent** means “hundred.”
So, 39 **percent** means “39 for every hundred.”

The symbol for
percent
is
%.

Use Your Vocabulary

Complete each statement with the correct word from the list below.

percent

cents

century

centimeters

5. One dollar has the same value as 100 ? .

6. There are 100 years in a ? .

7. There are 100 ? in 1 meter.

8. One part out of 100 is 1 ? .

Key Concept The Percent Proportion and Percent Equation

You can represent “ a is p percent of b ” using either the percent proportion or the percent equation. In each case, b is the *base* and a is a *part* of *base* b .

The Percent Proportion

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

where base $b \neq 0$

The Percent Equation

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

9. Complete the percent proportion and the percent equation by placing *part*, *whole*, and p in the correct places.

$$\frac{\boxed{}}{\text{whole}} = \frac{\boxed{}}{100}$$

$$\text{part} = \boxed{}\% \cdot \boxed{}$$



Problem 2 Finding a Percent Using the Percent Equation

Got It? Reasoning What percent of 84 is 63? Use the percent equation to solve. Then use the percent proportion. Compare your answers.

10. Solve the *percent equation* for p .

$$\text{part} = p\% \cdot \text{whole}$$

$$63 = p\% \cdot \boxed{}$$

$$\frac{63}{\boxed{}} = p\%$$

$$\boxed{} = p\%$$

$$(\boxed{} \cdot 100)\% = p\%$$

$$\boxed{} = p$$

11. Solve the *percent proportion* for p .

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

$$\frac{\boxed{}}{84} = \frac{p}{\boxed{}}$$

$$\boxed{} \cdot 100 = \boxed{} \cdot p$$

$$\boxed{} = 84p$$

$$\boxed{} = p$$

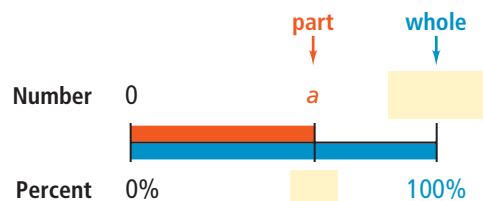
12. Compare your answers.



Problem 3 Finding a Part

Got It? A family sells a car to a dealership for 60% less than they paid for it. They paid \$9000 for the car. For what price did they sell the car?

13. Complete the model. Then use the model to complete and solve the percent proportion.



$$\frac{a}{\quad} = \frac{\quad}{100}$$

$$100a = \quad \cdot \quad$$

$$100a = \quad$$

$$\frac{100a}{\quad} = \frac{\quad}{\quad}$$

$$a = \quad$$

14. Find the selling price of the car: $9000 - \quad = \quad$

15. The family sold the car for \$ \quad .



Problem 4 Finding a Base

Got It? 30% of what number is 12.5? Solve the problem using the percent equation. Then solve the problem using the percent proportion.

16. In the problem, the unknown quantity is $\text{base } b / \text{part } a$.
17. Solve the problem using the percent equation and the percent proportion.

Percent Equation

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

Percent Proportion

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

18. 30% of \quad is about 12.5.

take note

Key Concept Simple Interest Formula

Simple interest is interest you earn on only the principal in an account. The simple interest formula is given below, where I is the interest, P is the **principal**, r is the **annual interest rate, written as a decimal**, and t is the **time in years**.

$$I = Prt$$

19. You invest \$100 at a simple interest rate of 2.5% per year for 6 years. Write an equation to show how much interest you will earn.

First, write the interest rate, 2.5%, as a decimal.

Remember to insert leading zeros.

$$2.5\% = \quad$$

Now write the equation.

$$I = \quad \cdot \quad \cdot \quad$$



Problem 5 Using the Simple Interest Formula

Got It? You deposited \$125 in a savings account that earns a simple interest rate of 1.75% per year. You earned a total of \$8.75 in interest. For how long was your money in the account?

20. Complete the model.

Relate is times times

Define Let $t =$

Write = \cdot % \cdot

21. As a decimal, 1.75% = .

22. Now solve for t .

23. Your money was in the account for years.



Lesson Check • Do you UNDERSTAND?

Open-Ended Give an example of a percent problem where the part is greater than the base.

24. Place a \checkmark if the situation has a part greater than the whole. Place an \times if the situation does NOT have a part greater than the whole.

☐

The green marbles in a jar of red, green, and blue marbles

☐

Your math test score when you answer every question and the extra credit question correctly

☐

The part of chicken stew that is chicken



Math Success

Check off the vocabulary words that you understand.

☐

percent

☐

part

☐

base

Rate how well you can *solve percent problems*.

