SKILL 16: PROBLEM SOLVING: Interest

When money is borrowed or invested, interest is paid or earned on the money. **Simple interest** is computed using the formula below. The **principal** is the amount of money borrowed or invested. The **rate** is the percent of interest per year. The length of time the money is borrowed or invested is expressed in years.

Interest = Principal × Rate × Time
$$I = p \times r \times t$$

Example

The Math Club deposited $288 in a savings account for 6 months. If the money earns simple interest at the rate of 8%, how much interest will the club receive after 6 months?

Read The principal is $288, the rate is 8%, and the time is 6 months (0.5 year).

Plan Use the simple interest formula: $I = p \times r \times t$.
$I = 288 \times 8\% \times 0.5$ Substitute the values into the formula.

Solve $I = 288 \times 0.08 \times 0.5$ Write the percent as a decimal or a fraction.
$I = 11.52$ Multiply.

The Math Club will receive $11.52 in interest.

Look Back Estimate the product: $300 \times 0.1 \times 0.5 = 300 \times 0.05 = 15$. The answer makes sense.

Guided Practice

1. Angie borrowed $400 from her parents at 6.5% simple interest for 3 years. What is the total amount Angie must repay?

a. Give these values: $p =$ _____ $r =$ _____ $t =$ _____

b. Find the interest: $I = p \times r \times t =$ _____ × _____ × _____ = _____

c. Angie will repay the principal plus interest. How much will she repay? _____ + _____ = _____

2. Julian invested $2,000 at 4% simple interest. How much is his investment worth after $1\frac{1}{2}$ years?

a. Simple interest: $I = p \times r \times t =$ _____ × _____ × _____ = _____

b. Principal + Interest = _____ + _____ = _____

SKILL 16: Practice

Find the amount of the interest.

1. $p = \$375$
$r = 5\%$
$t = 2$ years

$I =$ _____

2. $p = \$1,000$
$r = 10\%$
$t = 2\frac{1}{2}$ years

$I =$ _____

3. $p = \$400$
$r = 8.5\%$
$t = 6$ months

$I =$ _____

Solve each problem.

4. Katie invested $100 at 6% simple interest for $1\frac{1}{2}$ years. How much interest did she earn?

_____

5. Lou loaned Don $500 at 10% simple interest for 1 year.

a. How much interest will Don pay?

_____

b. What is the total amount Don will repay?

_____

6. Find the simple interest earned

a. on $300 invested at 5% for 4 years.

_____

b. on $300 invested at 4% for 5 years.

_____

c. What do you notice about the answers to part **a** and part **b**?

_____

7. Fay invested $750 at 8.5% simple interest. How much is her investment worth after 3 years?

_____

8. Steven's credit card company charges 18% simple interest. How much will he pay altogether if he has a balance of $320 after one year?

_____

TEST PREP

9. Find the simple interest earned on $200 invested at 7% for 3 years.

Skill 16

A $420   **C** $600
B $42   **D** $14

10. Solve: $\frac{15}{36} = \frac{m}{54}$.

Skill 6

F 810   **H** 22.5
G 42   **J** 129.6