SKILL 19: PROBLEM SOLVING: Percent of Increase and Decrease

To find the **percent of increase**, compare the amount of increase to the original amount

$$\frac{\text{amount of increase}}{\text{original amount}} = \frac{n}{100}$$

To find the **percent of decrease**, compare the amount of the decrease to the original amount.

$$\frac{\text{amount of decrease}}{\text{original amount}} = \frac{n}{100}$$

Example

Last year the Luna family paid $900 a month for rent. This year the rent increased to $972 a month. By what percent did their rent increase from last year to this year?

Read The rent increased from $900 to $972.

Plan Subtract to find the amount of the increase: $972 − $900 = $72.
Write a proportion to find what percent $72 is of $900.

$$\text{amount of increase} \longrightarrow \frac{72}{900} = \frac{n}{100} \longleftarrow \text{original amount}$$

amount of increase ⟶ $\frac{72}{900} = \frac{n}{100}$
original amount ⟶

Solve Find the cross products. $900n = 7200$
Divide by 900. $n = 8$
The percent of increase is 8%.

Look Back Is 8% of $900 equal to $72? Since 0.08 × 900 = 72, it checks.

Guided Practice

1. The original price of a pair of jeans was $30. The sale price is $24. What is the percent of discount? (*Discount* is a decrease in price.)

   a. Find the amount of the discount. $30 − $24 = $_____.

   b. Write a proportion to find the percent of discount.

   $$\frac{\text{amount of decrease} \rightarrow \square}{\text{original amount} \rightarrow \square} = \frac{n}{100}$$

   c. Solve the proportion. What is the percent of discount? _____

2. Michael bought a baseball card for $5. He later sold it for $10. By what percent did the price of the card increase?

   a. Write a proportion to find the percent of increase.

   $$\frac{\text{amount of increase} \rightarrow \square}{\text{original amount} \rightarrow \square} = \frac{n}{100}$$

   b. By what percent did the price of the card increase? _____

SKILL 19: Practice

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Write *increase* or *decrease* for each change. Then find the percent of increase or decrease.

1. from $90 to $117

2. from $98 to $49

_____

_____

3. from $45 to $27

4. from $72 to $135

_____

_____

5. from $120 to $150

6. from $200 to $196

_____

_____

Solve each problem.

7. The enrollment at Polk Middle School grew from 440 students to 528 students. By what percent did enrollment grow?

_____

8. Between 1978 and 1997 the price of gasoline increased from about $.65 a gallon to about $1.30. By what percent did the price of gasoline increase?

_____

9. A store marked down the price of a television from $800 to $600. What is the percent of decrease in price?

_____

10. The population of Liberty City decreased from 1,250 to 1,145. By what percent did the population go down?

_____

11. During a 20% discount sale, a pair of skates was marked down $7. What was the original price of the skates?

_____

12. After Hank studied for a test and got a good grade, his average increased from 85 to 91. To the nearest percent, by what percent did Hank increase his average?

_____

TEST PREP

13. A $12 tape is on sale for $9. What is the percent of discount?

Skill 19

A 133% **C** 25%

B 75% **D** $3

14. Which does not show the ratio 3 apples to 4 oranges?

Skill 1

F 3 : 4 **H** $\frac{4}{3}$

G $\frac{3}{4}$ **J** 3 to 4