NAME_____

Module 7 **Ratio, Proportion, and Percent**
Lesson 7 **Problem Solving with Percents**

Independent Practice 7.7

Find each percent of change. Tell if it is a percent of increase or decrease.

1. Original amount: 60
New amount: 90

50% increase

2. Original amount: $36
New amount: $63

75% increase

3. Original amount: 120
New amount: 0

100% decrease

4. Matthew bikes 16 miles every Saturday morning. He now plans on increasing his Saturday mileage by 20%. How many miles will he bike on Saturday mornings now?

Matthew will bike 19.2 miles.

5. Chantel ran on a treadmill at a rate of six miles per hour. To cool down, she decreased the rate to two miles per hour. Find the percent of decrease.

Chantel decreased the rate by $66\frac{2}{3}\%$.

6. The original price of a medium pizza was $9.75, and the original price of a large pizza was $15.50. The price of the medium pizza increased by 20%, and the price of the large decreased by 10%. Find the new prices.

Medium pizza: $11.70
Large pizza: $13.95

Find the amount of simple interest.

7. P: \$300
r: 4%
t: 6 years

\$72

8. P: \$2,500
r: 8.5%
t: $3\frac{1}{2}$ years

\$743.75

9. P: \$925
r: 2.25%
t: 3 months

\$5.20

10. Norma borrowed \$850 for one year. How much interest will she pay if the interest rate is 5% compounded semi-annually?

Norma will pay \$43.03 in interest.

11. Sherman saved \$10,000 for $1\frac{1}{2}$ years. How much interest will he earn if the simple interest rate is 8%? What will be the total amount in the account?

Interest: \$1,200 **Total amount: \$11,200**

12. Nick has \$300 to put into a savings account. He went to two banks and got these offers on interest rates:

- Bank A: 4% simple interest
- Bank B: 3.5% compounded annually

Find how much interest each bank would pay after two years.

Bank A: \$24
Bank B: \$21.37

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Journal

1. When will a percent of increase be equal to 100%? Give an example.

2. Randy found a percent of change and wrote $\frac{30-20}{20}$. Did Randy find a percent of increase or decrease? How can he tell?

3. Explain why $1,000 saved at a rate of 5% compounded semiannually for two years gives more interest than $1,000 saved at a rate of 5% compounded annually for two years.

Cumulative Review

Find the decimal and percent equivalents.

1. $\frac{5}{8}$

Decimal: 0.625
Percent: 62.5%

2. $3\frac{5}{9}$

Decimal: $3.\overline{5}$
Percent: $355\frac{5}{9}\%$

Find the unit cost.

3. Seven bars of soap cost $3.50.

$0.50 per bar

4. A package of 12 batteries cost $6.60.

$0.55 per battery

5. Rosemary bought a book for $8.95. The sales tax is 5%. How much sales tax did she pay?

Rosemary paid $0.45 in sales tax.

6. A box of cereal that normally costs $4.25 has been discounted 20% because the box is crumpled. How much does the box of cereal cost?

The cereal costs $3.40.

7. A store buys T-shirts for $3.00 and marks them up 350%. For how much does the store sell the T-shirts?

The shirts sell for $13.50.

8. Forty percent of what number is 800?

2,000

9. What percent of 50 is 75?

150%

10. What is 62% of 30?

18.6

Possible Journal Answers

1. **A percent of increase will be equal to 100% when the amount of change equals the original amount. For example, if the original amount is 10 and the new amount is 20, the amount of increase is 10, and**
$$\frac{\text{amount of increase}}{\text{original amount}} = \frac{10}{10} = 1 = 100\%.$$

2. **Randy is found a percent of increase. The denominator was the original amount. If 20 was the original amount, then 30 was the new amount. Since 30 > 20, the change was an increase.**

3. **Everything is the same between the two situations except for how often the interest is compounded. In the first one, interest compounded semiannually for two years means that the interest will be compounded four times. In the second one, interest compounded annually for two years means the interest will be compounded two times. More money is made when the interest is compounded more often because the interest is paid on previous interest earned each time.**