

## Section 2.4: FORMULAS AND PERCENTS

When you are done with your homework you should be able to...

- $\pi$  Solve a formula for a variable
- $\pi$  Express a percent as a decimal
- $\pi$  Express a decimal as a percent
- $\pi$  Use the percent formula
- $\pi$  Solve applied problems involving percent change

WARM-UP:

Solve:

1.  $4 = 0.25B$

2.  $1.3 = P \cdot 26$

**SOLVING A FORMULA FOR ONE OF ITS VARIABLES**

Solving a formula for a variable means \_\_\_\_\_ the \_\_\_\_\_  
so that the \_\_\_\_\_ is \_\_\_\_\_ on one side of the  
equation. To solve a formula for one of its variables, treat that \_\_\_\_\_  
as if it were the only \_\_\_\_\_ in the \_\_\_\_\_.

**PERIMETER**

The \_\_\_\_\_ of a \_\_\_\_\_ figure is the  
\_\_\_\_\_ of the \_\_\_\_\_ of its \_\_\_\_\_. Perimeter is measured  
in \_\_\_\_\_ units, such as \_\_\_\_\_, \_\_\_\_\_,  
or \_\_\_\_\_.

**PERIMETER OF A RECTANGLE**

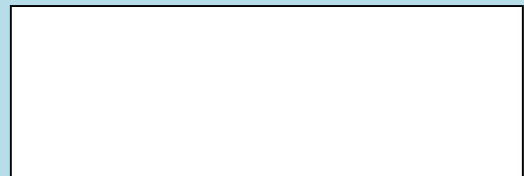
The perimeter, \_\_\_\_\_, of a rectangle with length \_\_\_\_\_ and width \_\_\_\_\_ is given by the formula

**SQUARE UNITS**

A \_\_\_\_\_ unit is a \_\_\_\_\_, each of whose sides is \_\_\_\_\_ unit in length. The \_\_\_\_\_ of a \_\_\_\_\_ figure is the number of \_\_\_\_\_ it takes to fill the interior of the figure.

**AREA OF A RECTANGLE**

The area, \_\_\_\_\_, of a rectangle with length \_\_\_\_\_ and width \_\_\_\_\_ is given by the formula



Example 1: Solve the following formulas for the specified variable.

1.  $d = rt; t$

2.  $P = C + MC; C$

Example 2: Consider a rectangle which has an area of 15 square feet and a width of 3 feet.

1. Find the length.
2. Find the perimeter.

### BASICS OF PERCENTS

\_\_\_\_\_ are the result of \_\_\_\_\_ numbers as \_\_\_\_\_ of \_\_\_\_\_. The word \_\_\_\_\_ means \_\_\_\_\_.

### PERCENT NOTATION

\_\_\_\_\_ means \_\_\_\_\_.

### STEPS FOR EXPRESSING A PERCENT AS A DECIMAL NUMBER

1. Move the \_\_\_\_\_ point \_\_\_\_\_ places to the \_\_\_\_\_.
2. Remove the \_\_\_\_\_ sign.

Example 3: Express each percent as a decimal.

1. 9.5%
2. 235%

**STEPS FOR EXPRESSING A DECIMAL NUMBER AS A PERCENT**

1. Move the \_\_\_\_\_ point \_\_\_\_\_ places to the \_\_\_\_\_.
2. Attach a \_\_\_\_\_ sign.

Example 4: Express each decimal as a percent.

1. 1.75

2. 0.01

**A FORMULA INVOLVING PERCENT**

\_\_\_\_\_ are useful in comparing two \_\_\_\_\_. To \_\_\_\_\_ the number \_\_\_\_\_ to the number \_\_\_\_\_ using a percent \_\_\_\_\_, the following formula is used:

Example 5: Solve.

1. What is 12% of 50?

2. 6 is 30% of what?

3. 200 is what percent of 20?

## PERCENT INCREASE

## PERCENT DECREASE

## APPLICATIONS

1. The average, or mean,  $A$ , of four exam grades,  $x$ ,  $y$ ,  $z$ , and  $w$ , is given by the

formula  $A = \frac{x + y + z + w}{4}$ .

- a. Solve the formula for  $w$ .

- b. Use the formula in part (a) to solve this problem: On your first three exams, your grades are 76%, 78%, and 79%:  $x = 76$ ,  $y = 78$ , and  $z = 79$ . What must you get on the fourth exam to have an average of 80%?

