

Section 2.4: THE MULTIPLICATION PROPERTY OF EQUALITY

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

- π Solve a formula for a variable
- π Express a percent as a decimal
- π Express a decimal as a percent
- π Use the percent formula
- π 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

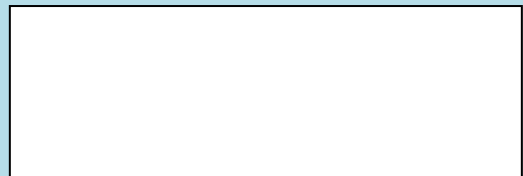
The perimeter, _____, of a rectangle with length _____ and width _____ is given by the formula

**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%?

2. A charity has raised \$225,000, with a goal of raising \$500,000. What percent of the goal has been raised?

3. Suppose that the local sales tax rate is 7% and you buy a graphing calculator for \$96.
 - a. How much tax is due?

 - b. What is the calculator's total cost?

4. The price of a color printer is reduced by 30% of its original price. When it still does not sell, its price is reduced by 20% of the reduced price. The salesperson informs you that there has been a total reduction of 50%. Is the salesperson using percentages properly? If not, what is the actual percent reduction from the original price?