

## ▶ Solving Problems with Formulas

Fill in the guided notes as you watch the video in the Digital Toolbox.

- When solving problems with formulas, start by \_\_\_\_\_ the problem carefully.
  - Name the \_\_\_\_\_ that contains both the value that you are solving for and the values that you already know.
- Once you have written down a formula and defined the \_\_\_\_\_ in the problem:
  - \_\_\_\_\_ the values that you already know into the formula.
  - \_\_\_\_\_ for the remaining variable in the formula.
- Remember to label your final answer with the correct \_\_\_\_\_. If no units of measurements are specified, simply use “units.”

### ▶ Example 1

Complete the example as you watch the video in the Digital Toolbox.

**Determine the formula needed to solve.**

**Triangle:**  $P = a + b + c$

**Rectangle:**  $P = 2l + 2w$

The perimeter of a rectangle is 48 units. The length is twice the width plus 3. What are the dimensions?

**Implement**

$$P = 2l + 2w$$

$$P = 48$$

$$l = 2w + 3$$

$$48 = 2(2w + 3) + 2w$$

**Explain**

Name the formula

Identify the key information

Determine the equation for length using mathematical vocabulary

Substitute values into the formula

Solve for the variable,  $w$

Substitute to find the length,  $l$

The dimensions of the rectangle are

**▶ Example 2**

*Complete the example as you watch the video in the Digital Toolbox.*

**Determine the formula needed to solve.**

**Triangle:**  $P = a + b + c$

**Rectangle:**  $P = 2l + 2w$

The perimeter of a triangle is 30 inches. Side  $b$  is twice the length of side  $a$ , and side  $c$  is three times the length of side  $a$ . Find the dimensions of the triangle.

**Implement**

**Explain**

Name the formula

Identify the key information

Determine the equations for  $b$  and  $c$

Solve for  $a$ ,  $b$ , and  $c$



**Rectangle**

$$A = lw \text{ or } A = bh$$

$$P = 2(l + w) \text{ or } P = 2l + 2w$$

**Triangle**

$$A = \frac{1}{2}bh \text{ or } A = \frac{bh}{2}$$

$$P = a + b + c$$

**Rectangular  
Prism**

$$V = lwh$$

**Rectangular  
Pyramid**

$$V = \frac{1}{3}lwh$$

**Determine the formula needed to solve. Show your work.**

- 3)** Find the height of a pyramid if the volume is  $35 \text{ cm}^3$ , the length of the base is 3 cm and the width of the base is 5 cm.

- 4)** Find the length of a rectangular prism if the height is 12 inches, the width is 4 inches, and the volume is 72 cubic inches.