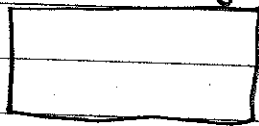# Defining One Variable in terms of Another Variable

The length of a rectangle is 6 inches more than the width. The perimeter of the rectangle is 24 inches. Find the dimensions of the rectangle.

$$P = 2l + 2w$$

$$24 = 2(w+6) + 2w$$

w = width
$w+6$ = length

$$24 = 2w + 12 + 2w$$

$$24 = 4w + 12$$
$$-12 \qquad -12$$

l = length
$l-6$ = width

$$\frac{12}{4} = \frac{4w}{4}$$

$$\boxed{3 = w}$$
inches

$$w + 6$$
$$3 + 6$$
$$\boxed{9 \text{ inches length}}$$

Check understanding example 1

$l = $ length
$l - 2 = $ width

$w = $ width
$w + 2 = $ length

$$P = 2l + 2w$$
$$16 = 2l + 2(l-2)$$

$$16 = 2l + 2l - 4$$

$$16 = 4l - 4$$
$$+4 \qquad +4$$

#1-9

$$\frac{20}{4} = \frac{4l}{4}$$

$$\boxed{5 = l}$$
cm

- define variables

- write your equation

- solve