

## Solving Equations: Word Problems

(Solve for each variable)

**Example:** The perimeter of a rectangle is 100 units. The length is 10 units more than the width. Find the length and width of the rectangle.

$$2L + 2W = 100 \quad \text{Perimeter of a rectangle is } 100 \text{ units.}$$

$$L = W + 10 \quad \text{The length is 10 units more than the width.}$$

$$2(W + 10) + 2W = 100 \quad \text{Substitute } L = W + 10 \text{ into } 2L + 2W = 100.$$

$$2W + 20 + 2W = 100 \quad \text{Distribute.}$$

**Now solve for each variable.**

$4W + 20 = 100$	$4W = 80$	$W = 20$
$4W = 80$	$W = 20$	$L = 30$
$2L + 2W = 100$	$2(30) + 2(20) = 100$	$60 + 40 = 100$
$2L + 2W = 100$	$2L + 2(20) = 100$	$2L + 40 = 100$
$2L + 2W = 100$	$2L + 40 - 40 = 100 - 40$	$2L = 60$

