

Good morning!

Warmup:

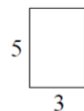


Notes Page 24: preskill letters a, b, c, d

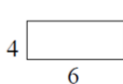
Pre-Skill:

Give the perimeter of each rectangle.

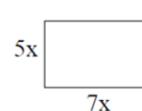
a.



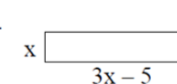
b.



c.



d.



Homework tonight:

HW Page 17 (evens)

HW Page 18 (odds)

Refer to HW page 13

$$27) \frac{2}{3}x = 8$$

$$28) \frac{2}{5}a = -4$$

$$29) -\frac{5}{7}h = 20$$

$$30) -\frac{3}{4}m = -9$$

## HW page 15 odd

1. Nine less than four times a number is fifteen. Find the number.

$$\begin{array}{r} 4x - 9 = 15 \\ +9 \quad +9 \\ \hline 4x = 24 \\ \frac{4x}{4} = \frac{24}{4} \end{array} \quad \boxed{x=6}$$

3. Four less than twelve times a number is negative one-hundred. Find the number.

$$\begin{array}{r} 12x - 4 = -100 \\ +4 \quad +4 \\ \hline 12x = -96 \\ \frac{12x}{12} = \frac{-96}{12} \end{array} \quad \boxed{x=-8}$$

5. Eight less than a number divided by seven is two. Find the number.

$$\begin{array}{r} \frac{x}{7} - 8 = 2 \\ +8 \quad +8 \\ \hline \frac{x}{7} = 10 \end{array} \quad \begin{array}{l} (7) \frac{x}{7} = 10 (7) \\ x = 70 \end{array} \quad \boxed{x=70}$$

7. Eleven less than the quotient of a number and five is four. Find the number.

$$\begin{array}{r} \frac{x}{5} - 11 = 4 \\ +11 \quad +11 \\ \hline \frac{x}{5} = 15 \end{array} \quad \begin{array}{l} (5) \frac{x}{5} = 15 (5) \\ x = 75 \end{array} \quad \boxed{x=75}$$

9. Eight more than twice a number is negative fourteen. Find the number.

$$\begin{array}{r} 2x + 8 = -14 \\ -8 \quad -8 \\ \hline 2x = -22 \\ \frac{2x}{2} = \frac{-22}{2} \\ x = -11 \end{array} \quad \boxed{x=-11}$$

## HW page 16 odd

$$1. \begin{array}{r} 4n - 2n = 18 \\ \hline 2n = 18 \\ \hline n = 9 \end{array}$$

$$3. \begin{array}{r} 7m - 3m - 6 = 6 \\ \hline 4m - 6 = 6 \\ +6 \quad +6 \\ \hline 4m = 12 \\ \hline m = 3 \end{array}$$

$$5. \begin{array}{r} -3p + 8 - 2p = -12 \\ \hline -5p + 8 = -12 \\ \hline -5p = -20 \\ \hline p = 4 \end{array}$$

$$7. \begin{array}{r} 9 - 3 + n + 2n \\ \hline 9 + 3 \quad 3n + 2n \\ \hline 12 = 5n \\ \hline 4 = n \end{array}$$

$$9. \begin{array}{r} m + 3m - 9 = 1 \\ \hline 4m - 9 = 1 \\ +9 \quad +9 \\ \hline 4m = 10 \\ \hline m = 2\frac{1}{2} \end{array}$$

$$11. \begin{array}{r} 5(x - 1) = 35 \\ \hline 5x - 5 = 35 \\ +5 \quad +5 \\ \hline 5x = 40 \\ \hline x = 8 \end{array}$$

$$13. \begin{array}{r} m + 5(m - 1) = 7 \\ \hline m + 5m - 5 = 7 \\ \hline 6m - 5 = 7 \\ +5 \quad +5 \\ \hline 6m = 12 \\ \hline m = 2 \end{array}$$

$$15. \begin{array}{r} 16 - 2(3p + 4) = 38 \\ \hline 16 - 6p - 8 = 38 \\ \hline -6p + 8 = 38 \\ -8 \quad -8 \\ \hline -6p = 30 \\ \hline p = -5 \end{array}$$

## HW page 17 odd

1. A second number is four times the first. Their sum is 50. Find the numbers.

$$\begin{aligned} \text{Let } x &= \text{first} = 10 \\ \text{Let } 4x &= \text{2nd} = 40 \\ \hline 5x &= 50 \\ \frac{5x}{5} &= \frac{50}{5} \\ x &= 10 \end{aligned} \quad \boxed{\{10, 40\}}$$

3. A first number is nine less than a second. The sum of the numbers is 45. Find the numbers.

$$\begin{aligned} \text{Let } x &= \text{second \#} = 27 \\ \text{Let } x-9 &= \text{first \#} = 18 \\ \hline 2x-9 &= 45 \\ \frac{2x-9}{+9} &= \frac{45}{+9} \\ 2x &= 54 \end{aligned} \quad \boxed{\{18, 27\}}$$

5. The larger number is one less than three times a smaller. Their sum is 63. Find the numbers.

$$\begin{aligned} \text{Let } x &= \text{smaller} = 16 \\ \text{Let } 3x-1 &= \text{larger} = 47 \\ \hline 4x-1 &= 63 \\ \frac{4x-1}{+1} &= \frac{63}{+1} \\ 4x &= 64 \\ \frac{4x}{4} &= \frac{64}{4} \end{aligned} \quad \boxed{\{16, 47\}}$$

7. A backpack costs three times as much as a notebook. Together they cost \$36. Find the cost of each.

$$\begin{aligned} \text{Let } x &= \text{notebook} = 9 \\ \text{Let } 3x &= \text{backpack} = 27 \\ \hline 4x &= 36 \\ \frac{4x}{4} &= \frac{36}{4} \end{aligned} \quad \boxed{\{9, 27\}}$$

9. Joey weighs five pounds less than twice his brother. Together they weigh 100 pounds. What are their weights?

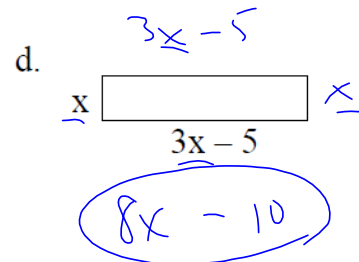
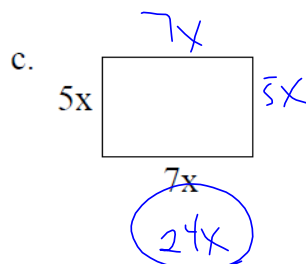
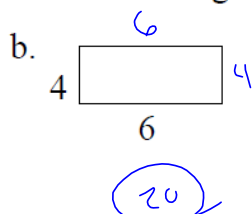
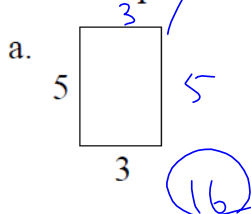
$$\begin{aligned} \text{Let } x &= \text{brother's weight} = 35 \\ \text{Let } 2x-5 &= \text{Joey's weight} = 65 \\ \hline 3x-5 &= 100 \\ \frac{3x-5}{+5} &= \frac{100}{+5} \\ 3x &= 105 \\ \frac{3x}{3} &= \frac{105}{3} \\ x &= 35 \end{aligned} \quad \boxed{\{35, 65\}}$$

p24  $P = 2L + 2W$

### Perimeter Word Problems

#### Pre-Skill:

Give the perimeter of each rectangle.

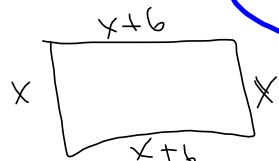


#### Examples

Translate to an algebraic equation and solve:

- a. The length of a rectangle is 6 in. more than its width. The perimeter of the rectangle is 24 in. Find the width and length.

Let  $L = x + 6$   
Let  $W = x$



$$x + x + 6 + x + x + 6 = 24$$

$$4x + 12 = 24$$

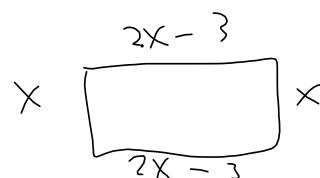
$$4x = 12$$

$$x = 3$$

$W = 3 \text{ in}$   
 $L = 9 \text{ in}$

- b. The length of a rectangle is 3cm less than twice its width. The perimeter of the rectangle is 18 cm. Find the width and length.

Let  $L = 2x - 3$   
Let  $W = x$



$$2L + 2W = P$$

$$2(2x - 3) + 2x = 18$$

$$4x - 6 + 2x = 18$$

$$6x - 6 = 18$$

$$6x = 24$$

$$x = 4$$

$W = 4 \text{ in.}$   
 $L = 5 \text{ in.}$

**✓ Understanding Check**

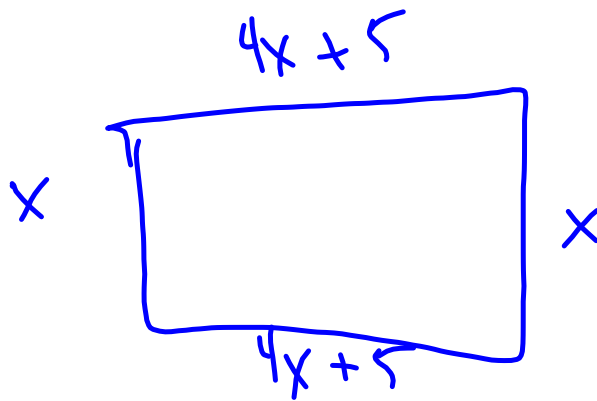
Translate to an algebraic equation and solve:

- a. The length of a rectangle is 5 inches longer than four times its width. The perimeter of the rectangle is 90 inches. Find the width and length.
  
  
  
  
  
  
  
  
  
  
- b. The width of a rectangle is 9 inches shorter than the length. If the perimeter is 26 inches. Find the width and length.
  
  
  
  
  
  
  
  
  
  
- c. The length of a rectangle is 7 centimeters longer than twice its width. If the perimeter is 68 centimeters, find the width and length.

a.  $W = 8, L = 37$

b.  $W = 2, L = 11$

c.  $W = 9, L = 25$



$$2(4x + 5) + 2x = 90$$