

Name: _____

Date: _____

Solving Linear Equations with Variables on Both Sides Algebra 1 Homework

Skills

1. Which of the following values of x is a solution to the equation $18 - 4x = 6 - 16x$?

(1) $x = 1$ (3) $x = -3$

(2) $x = -1$ (4) $x = 7$

2. Which of the following values of x is a solution to the equation $5x - 11 = 2x - 3$?

(1) $x = 5$ (3) $x = \frac{8}{3}$

(2) $x = \frac{2}{3}$ (4) $x = \frac{11}{2}$

3. Which of the following values of x is a solution to the equation $\frac{2}{3}x + 13 = \frac{7}{3}x - 22$?

(1) $x = \frac{5}{3}$ (3) $x = 21$

(2) $x = -\frac{10}{3}$ (4) $x = -15$

4. Solve each of the following linear equations. Check your answers and list the properties used.

(a) $3x + 5 = 2x - 7$

(b) $x - 2 = 3x - 1$

(c) $3x + 4x - 7 = 8 - 3x + 11$

(d) $5x + 6 + 2x - 1 = 10x + 3$

(e) $2 + 7x + 8 = x - 14$

(f) $6x - 10 - x - 2 = 9x + 2$

5. Translate each of the following sentences into an equation and then solve for the number described.

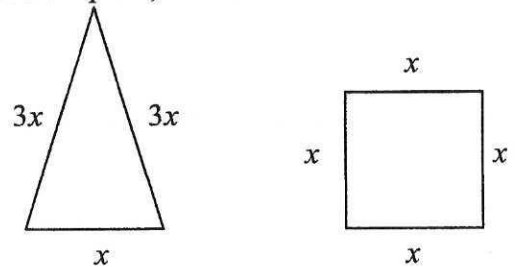
(a) Ten times a number increased by six is four times the same number increased by 24.

(b) Eight times a number increased by 12 is eight less than three times the same number.

(c) Nine more than two-thirds of a number is one more than the same number.

Applications

6. An isosceles triangle and a square are shown below with their side lengths given in terms of x . If the perimeter of the triangle is 27 more than the perimeter of the square, find the value of x .



Reasoning

7. Consider the linear equation $5x+11-2x+6=3x+17$.

(a) For each of the following, determine whether the given value of x satisfies the equation.

Just check them by using your calculator

$$x = 5$$

$$x = -3$$

$$x = \frac{5}{3}$$

$$x = -\frac{3}{2}$$

(b) Simplify the left hand side of the equation by combining like terms.

(c) What can you say about the solution set of this equation considering both parts (a) and (b)?