## Lesson 6: Solutions of a Linear Equation

Classwork

Exercises

Find the value of *x* that makes the equation true.

1. 17 - 5(2x - 9) = -(-6x + 10) + 4

2.  $-(x-7) + \frac{5}{3} = 2(x+9)$ 



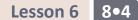
3. 
$$\frac{4}{9} + 4(x-1) = \frac{28}{9} - (x-7x) + 1$$

4. 5(3x+4) - 2x = 7x - 3(-2x + 11)



5.  $7x - (3x + 5) - 8 = \frac{1}{2}(8x + 20) - 7x + 5$ 

6. Write at least three equations that have no solution.



## **Lesson Summary**

The distributive property is used to expand expressions. For example, the expression 2(3x - 10) is rewritten as 6x - 20 after the distributive property is applied.

The distributive property is used to simply expressions. For example, the expression 7x + 11x is rewritten as (7 + 11)x and 18x after the distributive property is applied.

The distributive property is applied only to terms within a group:

$$4(3x+5) - 2 = 12x + 20 - 2$$

Notice that the term -2 is not part of the group and therefore not multiplied by 4.

When an equation is transformed into an untrue sentence, like  $5 \neq 11$ , we say the equation has <u>no solution</u>.

## **Problem Set**

Transform the equation if necessary, then solve it to find the value of x that makes the equation true.

- 1.  $x (9x 10) + 11 = 12x + 3\left(-2x + \frac{1}{3}\right)$
- 2.  $7x + 8\left(x + \frac{1}{4}\right) = 3(6x 9) 8$
- 3. -4x 2(8x + 1) = -(-2x 10)
- 4. 11(x + 10) = 132
- 5.  $37x + \frac{1}{2} \left(x + \frac{1}{4}\right) = 9(4x 7) + 5$
- 6. 3(2x 14) + x = 15 (-9x 5)
- 7. 8(2x + 9) = 56