Math Warm Up

Write the problem AND answers in the table below.

Add three to any number then divide by two	
Divide any number by two then add three	

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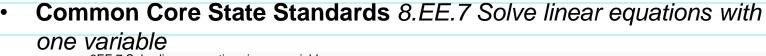
	My Thinking	Correct/Compare
Add three to any number then divide by two		$\frac{\times + 3}{2}$
Divide any number by two then add three		$\frac{x}{2} + 3$

Objective

TSW solve linear equations with one variable by simplifying expressions using distributive property AND

laws of equality

(adding, subtracting, multiplying and dividing on both sides of the equal sign)



8EE 7 Solve linear equations in one variable.

8EE 7a Give examples of linear equations in one variable with one solution, infinity many solutions, or no solutions 8EE 7b Solve linear equations with rational number coefficients

Mathematical Practices 1 Solve problems/persevere 2 Reason
 4 Model Mathematics 7 Look for and use structure



Linear equations
can be used to solve
mathematical and realworld problems. A linear
equation with one variable
can have one solution, no
solution, or infinitely many
solutions.

Use the distributive property to simplify

The Distributive Property is an algebra property which is used to multiply a single term and two or more terms inside a set of parentheses. Take a look at the problem below.

$$2(4 + 3)$$

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$$2(4 + 3)$$

$$2x4 + 2x3$$

Use the distributive property to simplify

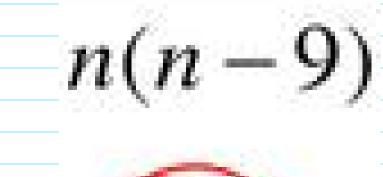
$$4(y+3)$$

$$4(y+3)$$



Use the distribute property to simplify

$$n(n-9)$$



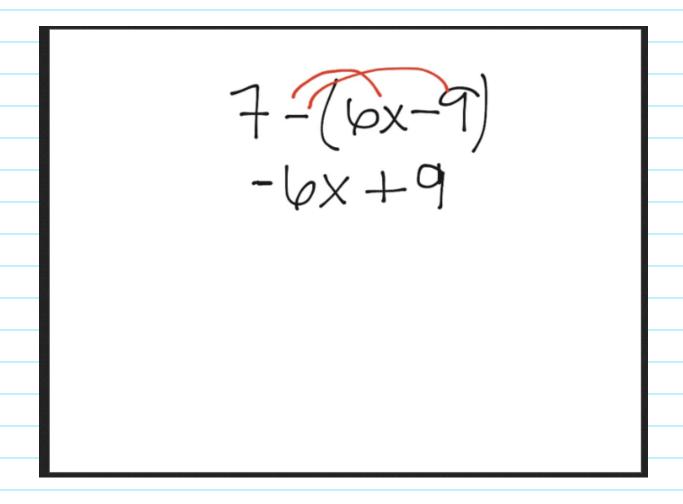


Use distribute property to simplify

$$(2-n)8$$

$$(2-n)8$$

http://www.showme.com/sh/?h=ud1msAC



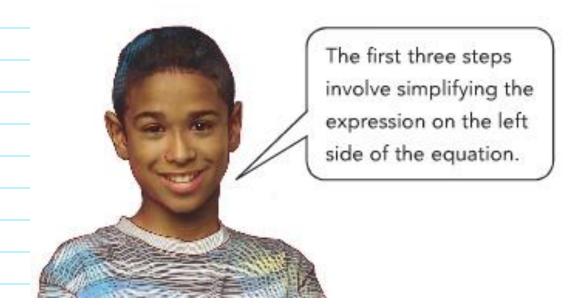
Example 1

Solve linear equations involving the distributive property.

$$\frac{3x}{4} - \frac{2x+1}{4} = -1.5$$

Rewrite the left side as a single fraction. Use the distributive property.

Simplify the numerator.



Example 1

Solve linear equations involving the distributive property.

$$\frac{3x}{4} - \frac{2x+1}{4} = -1.5.$$

Solution

$$\frac{3x}{4} - \frac{2x+1}{4} = -1.5$$

$$\frac{3x - (2x + 1)}{4} = -1.5$$

$$\frac{3x - 2x - 1}{4} = -1.5$$

$$\frac{x-1}{4} = -1.5$$

$$\frac{x-1}{4} \cdot \mathbf{4} = -1.5 \cdot \mathbf{4}$$

$$x - 1 = -6$$

$$x = -5$$

Rewrite the left side as a single fraction. Use the distributive

Simplify the numerator.

Multiply both sides by 4.

Simplify.

property.

Add 1 to both sides.

Simplify.

Guided Practice

Solve each linear equation.

$$1 \frac{2x}{3} - \frac{2+x}{3} = -4$$

Rewrite the left side as a single fraction.

Use the distributive property.

Simplify the numerator.

Guided Practice

Solve each linear equation.

$$1 \frac{2x}{3} - \frac{2+x}{3} = -4$$

$$\frac{2x}{3} - \frac{2+x}{3} = -4$$

$$\frac{?}{3} = -4$$

$$\frac{?}{2} = -4$$

$$\frac{?}{2} = -4$$

$$\frac{?}{3} \cdot \underline{?} = -4 \cdot \underline{?}$$

$$x = \frac{?}{}$$

Rewrite the left side as a single fraction.
$$2x - (2 + x)$$

Use the distributive property.
$$2x - 2 - x$$

Simplify the numerator.
$$\chi = 2$$

Multiply both sides by
$$\frac{?}{x-2}$$
; 3; 3; 3

Simplify.
$$x - 2$$
; -12

$$? + ? = ? + ?$$
 Add $?$ to both sides. $x - 2$; 2; -12 ; 2; 2

$$2 0.6(1 - x) + 0.2(x - 5) = 10$$

2
$$0.6(1-x) + 0.2(x-5) = 10 x = -26$$

$$\frac{3x}{5} + \frac{x-1}{3} = \frac{2}{15}$$

$$\frac{3x}{5} + \frac{x-1}{3} = \frac{2}{15} \quad x = \frac{1}{2}$$

Practice 3.1

$$1 \quad 4x - (10 - x) = \frac{15}{2}$$

$$20.5(x+1) - 1 = 0.2$$

Homework

When finding the value of an expression with more than one operation, perform the operations in the order specified by the order of operations.

Order of Operations

1. Perform all operations within grouping symbols first; start with the innermost grouping symbols.

2. Evaluate all powers before other operations.

Evaluate each expression.

Multiply and divide in order from left to right.
 Add and subtract in order from left to right.

3.
$$14 \div 2 + 3(5)$$

4.
$$5 - 6 \times 2 \div 3$$

5.
$$2 \cdot 3^2 + 10 - 14$$

6.
$$2^2 + 32 \div 8 - 5$$

8.
$$5^2 \cdot (8-6)$$

9.
$$(17-5)(6+5)$$

10.
$$3 + 7(14 - 8 \div 2)$$

12.
$$\frac{14}{3^2-2}$$

Challenge

Evaluate each expression if a = 3, b = 5, and c = 6.

19.
$$a + 3b$$

14.
$$4b - 3c$$

15.
$$2a - b + 5c$$

17.
$$a(b + c)$$

18.
$$3(bc - 8) \div a$$

Course 3

Course a

Lesson Check —#1 Solve linear equation with one variable