Math 8

CAASPP Sprint: Equations (2024)

Learning Target: I can solve and create equations with variables on both sides. *(EE)*

Identify Solution Types

Algebraic Form	Number of Solutions	Description
	None	There are no values of the variable for which the equation is true.
	One	The equation is true for exactly one value of the variable.
	Infinitely many	The equation is true for all values of the variable.

Determine each solution type.

	ONE Solution	NO Solution	INFINITE Solutions
$-3 = 3$			
$x = -3$			
$4 = 4$			
$-1 = 1$			
$1 = 1$			
$0 = x$			

Leo is solving the following linear equation.

$$11 + 3x - 7 = 6x + 4 - 3x$$

His final two steps are:

$$4 + 3x = 3x + 4$$

$$0 = 0$$

A. The solution is x = 0.

B. The solution is the ordered pair (0, 0).

C. There is no solution since 0 = 0 is a false statement.

D. There are infinitely many solutions because there is no x in the final equation.

Solving Equations

$$-\frac{1}{4}(12 - 8x) - 4x = 71$$

$$-(-10x + 7) + x = -14 + 9 - 3x - 2$$

	Verify (YES, do this on SBAC)	
Solution Types	Identify the type of solution for each equation: a. $6x - 2 - 3x = 3x - 2$ b. $6x - (3x + 8) = 16x$ c. $10 + 6x = 15 + 9x - 3x$ d. $11 + 3x - 7 = 6x + 5 - 3x$	

<table>
<tr><td>Create Solution Types</td><td>Create an equation that has
INFINITELY MANY SOLUTIONS

$3(2x + 5) - x = \_\_\_\_x + \_\_\_\_\_$</td><td>Create an equation that has
NO SOLUTIONS

$3(2x + 5) - x = \_\_\_\_x + \_\_\_\_\_$</td><td>Create an equation that has
ONE SOLUTIONS

$3(2x + 5) - x = \_\_\_\_x + \_\_\_\_\_$</td></tr>
<tr><td>Equations with Fractions</td><td colspan="2">Solve:
$\frac{1}{2}x - 3 = 2 - \frac{3}{4}x$

Fraction Busters – Multiply by the Denominator</td><td>Solve:
$-2\left(x + \frac{1}{3}\right) = -\frac{4}{3}\left(\frac{3}{2}x + \frac{1}{2}\right) + \frac{4}{3}$</td></tr>
<tr><td rowspan="2">Word Problems</td><td colspan="2">Kevin (aka Mr. Stott) owns a candy shop and wants to purchase gumdrops from a new supplier.
Supplier A charges \$0.04 per gumdrop, g, plus \$21 from shipping.
Supplier B charges \$0.03 per gumdrop, g, plus \$24 from shipping.
How many gumdrops would he have to purchase for the cost of both suppliers to be equal?</td><td>The city has two amusement parks to choose from.
The first charges \$8 per hour and they give a \$3 student discount off the total price.
The second charges \$7.25 per hour.
How many hours would you have to stay at each park for the cost to be the same?</td></tr>
<tr><td colspan="3">Challenge: John wants to order some pizzas. The restaurant next door charges \$23 for a large pizza and \$1.80 per topping. The restaurant 4 miles away charges \$21 plus \$1.80 per topping. How many pizzas would he have to buy for the cost to be the same?</td></tr>
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