Lesson 3.2 Identifying the Number of Solutions in Linear Equations (Day 2)

Math Warm Up

Thursday	My Thinking	Correct/Compare
$3(x - 1) - 8 = 4(1 + x) + 5$		

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Thursday	My Thinking	Correct/Compare
$3(x - 1) - 8 = 4(1 + x) + 5$		$x = -20$

Lesson 3.2 Identifying the Number of Solutions in Linear Equations (Day 2)

Objective

TSW

• Understand and identify linear equations with no solution.

• Understand and identify linear equations with infinitely many solutions

BIG IDEA

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

Common Core State Standards *8.EE.7a Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solution*

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

Lesson 3.2 Identifying the Number of Solutions in Linear Equations (Day 2)

Def- An equation with one solution

Def- An equation that is always true no matter what value is plugged in for the variable. Infinite solutions!

Def- An equation with no solution

Content Vocabulary Words

Match definition of vocabulary words with meaning

Consistent Equations

Identity

Inconsistent Equation

Guided Practice

Tell whether each equation has one solution, no solution, or an infinite number of solutions. Justify your answer.

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

*Write these examples in Math Notebook

Guided Practice

Tell whether each equation has one solution, no solution, or an infinite number of solutions. Justify your answer.

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

4 $2(x - 1) + 3 = 2x + 1$

$2(x - 1) + 3 \overset{?}{=} 2x + 1$

$\underline{\ ?\ } \ (\ ?\ ) \ \underline{\ ?\ } + 3 \overset{?}{=} 2x + 1$ Use the distributive property. **2x; −; 2**

$\underline{\ ?\ } \overset{?}{=} 2x + 1$ Combine like terms. **2x + 1**

$\underline{\ ?\ } \overset{?}{=} 2x + 1 - \underline{\ ?\ }$ Subtract $\underline{\ ?\ }$ from both sides. **2x + 1 − 2x; 2x; 2x**

$\underline{\ ?\ } = \underline{\ ?\ }$ Simplify. **1; 1**

Because $\underline{\ ?\ } = \underline{\ ?\ }$, the equation has $\underline{\ ?\ }$ solution(s). The equation is a(n) $\underline{\ ?\ }$.

1; 1; infinitely many; identity

Guided Practice

Tell whether each equation has one solution, no solution, or an infinite number of solutions. Justify your answer.

$$5\left(x + \frac{1}{5}\right) = 5x + 3$$

Guided Practice

Tell whether each equation has one solution, no solution, or an infinite number of solutions. Justify your answer.

$$5\left(x + \frac{1}{5}\right) = 5x + 3$$

Since 1 ≠ 3, the equation has no solution. So, the equation is inconsistent.

Your Turn

Tell whether each equation has one solution, no solution, or an infinite number of solutions. Justify your answer.

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

2 minute Commercial Break

Decide…
Partner Chihuahua (Taco Bell)
Partner Ronald (McDonald)

2 minute Commercial Break

Think about what you will say for 10 seconds before discussing..

Chihuahua (Taco Bell)
Tell if the equation is inconsistent, consistent, or identity. Be sure to explain if no solution, one solution, or infinite number of solutions

Partner McDonald-
Praise or Coach
*I like how you showed this equation was inconsistent, consistent, identity

Your Turn

Tell whether each equation has one solution, no solution, or an infinite number of solutions. Justify your answer.

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

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

$$6(x + 5) - 10 \overset{?}{=} 3(2x - 3)$$

$\underline{}^{?} \;\; \boxed{?} \;\; \underline{}^{?} - 10 \overset{?}{=} \underline{}^{?} \;\; \boxed{?} \;\; \underline{}^{?}$ Use the distributive property. $6x; +; 30; 6x; -; 9$

$\underline{}^{?} \overset{?}{=} \underline{}^{?}$ Combine like terms. $6x + 20; 6x - 9$

$\underline{}^{?} \overset{?}{=} \underline{}^{?}$ Subtract $\underline{}^{?}$ from both sides. $6x + 20 - 6x;$

$\underline{}^{?} \;\; \boxed{?} \;\; \underline{}^{?}$ Simplify. $20; \neq; -9$ $6x - 9 - 6x; 6x$

Because $\underline{}^{?} \;\; \boxed{?} \;\; \underline{}^{?}$, the equation has $\underline{}^{?}$ solution(s). The equation is a(n) $\underline{}^{?}$.

$20; \neq; -9;$ no; inconsistent equation

Independent Practice #1-5

Challenge-
"Pick a pumpkin"
IXL

Homework

Practice 3.2

Tell whether each equation has one solution, no solution, or an infinite number of solutions. Justify your answer.

1 $2x - \frac{1}{4} = -\frac{1}{8}(16x - 2)$

2 $0.5(6x - 3) = \frac{1}{2}(6 + 6x)$

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

4 Which step is the first incorrect step in the solution shown below

Solve: $6(x + 1) = -5x + 14$

Step 1: $6x + 6 = -5x + 14$
Step 2: $11x + 6 = 14$
Step 3: $11x = 8$
Step 4: $x = -3$

A) Step 1
B) Step 2
C) Step 3
D) Step 4

Express each decimal as a fraction. Show your work.

$0.0\overline{6}$

Thursday Homework

Solve for each variable AND Repeating Decimal #1-13

1. $8 - \frac{z}{2} = 5$	2. $\frac{u}{4} + 5 = 7$	3. $\frac{y}{7} + 8 = 13$	4. $\frac{x}{4} + 5 = 9$
5. $1 + \frac{b}{8} = 8$	6. $\frac{v}{3} + 3 = 7$	7. $\frac{c}{5} - 3 = 3$	8. $2 + \frac{b}{3} = 7$
9. $2 + \frac{y}{9} = 11$	10. $\frac{u}{5} + 10 = 17$	11. $\frac{y}{2} + 8 = 15$	12. $\frac{z}{7} + 10 = 12$

Express each repeating decimal as a fraction. Show your work.

13 $0.08\overline{3}$

IXL Search topics and skills

MATH LANGUAGE ARTS REPORTS AWARDS

Algebra 1 > J.7 Identities and equations with no solutions

How many solutions does this equation have?

$n + 5n = 6n$

○ no solution
○ one solution
○ infinitely many solutions

Submit

Lesson Check –#2 Tell whether each equation has one solution, no solution or infinite number of solutions.