

Lesson 3.1 Solving Linear Equations with one Variable (Day 8)

Wednesday

My Thinking

Correct/Compare

$$2x + \frac{x}{2} = \frac{5}{2}$$

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My Thinking

Correct/Compare

$$2x + \frac{x}{2} = \frac{5}{2}$$

$$x = 1$$

Lesson 3.1 Solving Linear Equations with one Variable (Day 5)

Objective

TSW solve linear equations with one variable by simplifying expressions using **distributive property**, **laws of equality**, **combining like terms** and **moving all the variables to one side of the equal sign**.

TSW write repeating decimals as fractions using linear equations

Common Core State Standards *8.EE.7 Solve linear equations with one variable*

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 real-world problems. A linear equation with one variable can have one solution, no solution, or infinitely many solutions.

Converting Repeating Decimals to Fractions

Converting repeating decimals to fractions 1

Watch the entire video

$$x = 0.\overline{7} = 0.7777\ldots$$

$$10x = 7.\overline{7} = 7.777\ldots$$

$$1.\overline{2} = 1.2222$$

$$\begin{array}{r} 10x = 7.\overline{7} = 7.777\ldots \\ - x = 0.\overline{7} = 0.777\ldots \\ \hline 9x = 7 \end{array}$$

$$\frac{9x}{9} = \frac{7}{9} = \frac{7}{9}$$

$$\boxed{x = \frac{7}{9}}$$

So this is the same thing
as 1.2222 on and on and on.

https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/conv_rep_decimals/v/converting-repeating-decimals-to-fractions-1

Converting Repeating Decimals to Fractions

$$\begin{aligned}x &= 1.\overline{2} = 1.2222 \\10x &= 12.\overline{2} = 12.222 \dots \\- x &= -1.\overline{2} \\ \hline 9x &= 11 \\ \frac{9x}{9} &= \frac{11}{9} \\ x &= \frac{11}{9}\end{aligned}$$

Step 1: Assign variable to the repeating decimal

Step 2: Subtract x from $10x$ to get a terminating decimal

Step 3: Solve for x

Guided Practice

5 $0.\overline{09}$

$$\frac{1}{11}$$

6

$0.0\overline{6}$

$$\frac{1}{15}$$

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Independent Practice #1-4

Name: _____ Independent Practice #1-4

Practice 3.1

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

1 $0.8\overline{3}$ 2 $0.0\overline{5}$

3 $\frac{3x - 2}{8} + \frac{2 - x}{4} = -\frac{1}{2}$

Course 3

Challenge- Solve created equation/
"Pick a pumpkin"



-Create Word-toons



Lesson Check —#2 Write repeating fractions as a decimal