Convert Rational Numbers to Decimals

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Convert Rational Numbers to Decimals

7th grade

Missouri Learning Standards (MLS)

7.NS.A.2.d

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Common Core State Standards

Objective

Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.

Apply and extend previous understanding of numbers to multiply and divide rational numbers.

D. Convert a rational number to a decimal

Key terms:

A **terminating** decimal is a decimal that ends. Examples: 0.8   0.75   0.1875

A **repeating** decimal is a decimal that has a digit or a group of digits that repeat over and over without ending. Examples: 0.33333333333…. or 0.27272727…..

A **repetend** is a digit or group of digits that repeat in a repeating decimal.

A bar is placed over the repeating digit(s) as a shorthand representation.

Prior Knowledge Needed

- Students will need to know how to read and write
- Students will need to know how to set up a fraction
- Students will need to know how to round to the thousandths place
- Students will need to know how to multiply/divide and add/subtract

CHANGE ANY FRACTION TO A DECIMAL

1. Place numerator inside and denominator outside the house.
2. Add a decimal point and 3-4 zeros to the number in the house.
3. Bring the decimal point straight up (and forget about it!)
4. Follow the long division steps:

   Dad ÷

   Mom ×

   Sister -

   Brother ↓

5. Repeat step 4 until you get a remainder to repeat or a remainder of 0.

6. If the decimal is repeating, write a bar over the repeating pattern.

Let's look at an example!

Write 1/3 as a decimal.
Remember the numerator goes inside the house and the denominator goes on the outside.

$$3 \overline{)1.0} \quad \quad .3$$
$$-9$$
$$\overline{\quad 1}$$

$$3 \overline{)1.00} \quad \quad .33$$
$$-9 \downarrow$$
$$\overline{\quad 10}$$
$$-9$$
$$\overline{\quad 1}$$

$$3 \overline{)1.000} \quad \quad .333$$
$$-9$$
$$\overline{\quad 10}$$
$$-9 \downarrow$$
$$\overline{\quad 10}$$
$$-9$$
$$\overline{\quad 1}$$

So, $\frac{1}{3} = .3333...$

$\frac{1}{3} = .\overline{3}$

Let's look another example.

1/8

$$\begin{array}{r} 0.125 \\ 8\overline{\smash{\big)}\ 1.000} \\ -\ \ \underline{8} \\ 20 \\ -\ \underline{16} \\ 40 \\ -\ \underline{40} \\ 0 \end{array}$$

Now it's your turn!

Micha has 3/4 oz of sugar to make her pie. The recipe calls for .80 oz. Does Micha have enough sugar?

PBL: Get into a group of 3 or 4 people.

- Develop a recipe to feed the village elders (total of 12).

- Select at least 3 recipes to modify for the number of people you'll have to feed.