What Are Multiple Representations of Rational Numbers?

- A rational number represents a value or a part of a value.

- Rational numbers can be written as integers, fractions, decimals, and percents.

- The different representations for any given rational number are all equivalent:

    3/10 = .30 = 30%   4/5 = .80 = 80%

- The purpose for which the ratio is being used will determine the form.

    o He ate **3/5** of the pizza.

    o The interest rate of .37 on a bank loan is very high.

    o O

How to cal...   ...s of rational nu...

- Fraction... ...a set. They are written as ratios.

    o **1/5 = 1 part of a set of 5**
    o **2/7 = 2 parts of a set of 7**

- Decimals are fractions with a denominator of 100 and written with a decimal point.

    o **2/5 = 40/100 or .40**
    o **6/10 = 60/100 or .60**

- Percents are the numerator of a fraction with a denominator of 100 and written with a percent % sign.

    o **44/100 = 44%**
    o **87/100 = 87%**
- To calculate the different representations, think "**equivalent fractions**."

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    If **½ = 2/4 = 25/50 = 50/100**, then **½** also equal **.50** or **50%**

    - o 50% of the class passed the test. If there are 20 students, only 10 passed.
    - o They painted 50% of the house today, in other words ½ of the painting is done.
    - o 50 cents is written as $.50 which is the same as ½ of a dollar.

- Some fractions cannot be changed into fractions with 100 as the denominator. For instance 1/3 cannot become n/100 because 3 does not divide evenly into 100. We can choose the number closest to 100 ÷ 3 in order to calculate a percent. Any fraction can be changed to a percent that is approximate by dividing the numerator by the denominator. For instance, 3/7 would be approximately 22%.

    - o **1/3** is about **33%**
    - o **1**
    - o **5**
    - o **2**

- You will   All references to money or coins use decimal representations: $.45 (45 cents), $.75 (75 cents). Percents are used in newspaper articles which discuss parts of groups. For instance, you might read: "After the hurricane, 90% of the city was without electricity." Choose the representation that best suits the context.

Try This!

4/20 = n/100   n = _____

15/25 = n/100 n= _____

65/100 = _____%

76/100 = _____%

The **decimal** representation for **51/100** is _____ .

The **decimal**

The **fraction**