

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:

$$3/10 = .30 = 30\%$$

$$4/5 = .80 = 80\%$$

- They can be written in many different forms.

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- Decimals are fractions with a denominator of 100 and written with a decimal point.
 - $2/5 = 40/100$ or $.40$
 - $6/10 = 60/100$ or $.60$
- Percents are the numerator of a fraction with a denominator of 100 and written with a percent % sign.
 - $44/100 = 44\%$
 - $87/100 = 87\%$
- To calculate the different representations, think "**equivalent fractions.**"

- If $\frac{1}{2} = \frac{2}{4} = \frac{25}{50} = \frac{50}{100}$, then $\frac{1}{2}$ also equal **.50** or **50%**
 - 50% of the class passed the test. If there are 20 students, only 10 passed.
 - They painted 50% of the house today, in other words $\frac{1}{2}$ of the painting is done.
 - 50 cents is written as \$.50 which is the same as $\frac{1}{2}$ of a dollar.
- Some fractions cannot be changed into fractions with 100 as the denominator. For instance $\frac{1}{3}$ cannot become $\frac{n}{100}$ because 3 does not divide evenly into 100. We can choose the number closest to $100 \div 3$ in order to calculate a percent. Any fraction can be changed to a percent that is approximate by dividing the numerator by the



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90% of the city was without electricity. Choose the representation that best suits the context.



Try This!

$$4/20 = n/100 \quad n = \underline{\hspace{2cm}}$$

$$15/25 = n/100 \quad n = \underline{\hspace{2cm}}$$

$$65/100 = \underline{\hspace{2cm}}\%$$

$$76/100 = \underline{\hspace{2cm}}\%$$

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