

Decimals and Fractions

Converting a fraction to a decimal:

To convert a fraction to a decimal, divide the numerator of the fraction by its denominator.

Vocabulary

Decimal Equivalent of a fraction	The decimal formed by dividing the numerator of the fraction by its denominator.
Terminating Decimal	A decimal equivalent that stops when a 0 remainder is reached
Repeating Decimal	A decimal equivalent that ends with a repeating sequence of digits
Bar Notation	The bar placed over the repeating digits of a repeating decimal

TRY:

Complete this chart of decimal equivalents by dividing the numerator of each fraction by its denominator. If the decimal equivalent is a repeating decimal, be sure to use bar notation.

$\frac{1}{2} = 0.5$	$\frac{1}{3} = 0.\bar{3}$	$\frac{1}{4} = 0.25$	$\frac{1}{5} = 0.2$	$\frac{1}{6} = 0.1\bar{6}$	$\frac{1}{8} = 0.125$
	$\frac{2}{3} =$	$\frac{3}{4} =$	$\frac{2}{5} =$	$\frac{5}{6} = 0.8\bar{3}$	$\frac{3}{8} =$
			$\frac{3}{5} = 0.6$		$\frac{5}{8} =$
			$\frac{4}{5} =$		$\frac{7}{8} = 0.875$
$\frac{1}{7} = 0.\overline{142857}$	$\frac{1}{9} = 0.\bar{1}$	$\frac{1}{11} = 0.\overline{09}$	$\frac{1}{12} = 0.08\bar{3}$	$\frac{1}{13} = 0.\overline{076923}$	
$\frac{2}{7} = 0.\overline{285714}$	$\frac{2}{9} =$	$\frac{2}{11} =$	$\frac{5}{12} =$	$\frac{2}{13} =$	
$\frac{3}{7} =$	$\frac{5}{9} =$	$\frac{9}{11} =$	$\frac{11}{12} = 0.91\bar{6}$	$\frac{11}{13} =$	

To convert a mixed number to a decimal equivalent, find the decimal equivalent of the fractional part and add the whole number part.

Example:

$$5\frac{2}{3} = 5.\bar{6}$$

TRY:

$$24\frac{5}{8} =$$

Converting a terminating decimal to a fraction:

If the decimal value is less than 1 –

Write the digits of the decimal without the decimal point in the numerator of the fraction.

Write the place value of the rightmost digit in the denominator of the fraction.

Simplify if possible.

Example:

$$.35 = \frac{35}{100} = \frac{7}{20}$$

TRY:

$$.031 =$$

If the decimal value is greater than or equal to 1 (i.e., it has a whole number portion) -

Write the digits to the right of the decimal as a simplified proper fraction and then form a mixed number with the whole number portion.

Example:

$$6.35 = 6\frac{35}{100} = 6\frac{7}{20}$$

TRY:

$$4.08 =$$

Comparing fractions and decimals:

Find the decimal equivalent of the fraction and compare the decimals.

Examples:

Which is larger $\frac{3}{8}$ or 0.38? $\frac{3}{8}$ converts to 0.375 0.38 can be expanded to 0.380

$$0.375 < 0.380$$

$$\text{So } \frac{3}{8} < 0.38$$

Which is larger $\frac{7}{9}$ or 0.76? $\frac{7}{9}$ converts to $0.\overline{7}$ which, when expanded is: $0.7\overline{7}$

$$0.7\overline{7} > 0.76$$

$$\text{So } \frac{7}{9} > 0.76$$

TRY:

Which is larger? $\frac{2}{15}$ or 0.15