

Converting Fractions to Terminating Decimals

To convert a fraction to a decimal, divide. Some fractions will convert to a decimal representation with a remainder of zero, called a terminating decimal.

Example:

Convert to a Decimal

$$\frac{3}{12} = 12 \overline{)3.00}$$

$$\underline{24}$$

$$60$$

$$\underline{60}$$

$$0$$

$$\frac{3}{12} = 0.25$$

Divide 3 by 12.

The decimal equivalent to three twelfths is twenty-five hundredths.

Example:

Convert to a Decimal

$$11\frac{5}{25} = 11 + 25 \overline{)5.00}$$

$$\underline{50}$$

$$0$$

$$11\frac{5}{25} = 11.20$$

The whole number portion of the number will remain the same. The fraction will convert to a decimal.

Divide 5 by 25.

The decimal equivalent to eleven and five twenty-fifths is eleven and two tenths.

Convert to a Decimal:

1) $\frac{9}{18}$

6) $\frac{19}{40}$

2) $\frac{15}{30}$

7) $\frac{48}{32}$

3) $\frac{6}{16}$

8) $5\frac{2}{20}$

4) $\frac{9}{20}$

9) $77\frac{7}{40}$

5) $\frac{13}{50}$

10) $47\frac{37}{50}$

Converting to Repeating Decimals

To convert a fraction to a decimal, divide. Some fractions will convert to a decimal representation with pattern, called a repeating decimal.

Example:

$$\begin{array}{r} 0.666\dots \\ 2 \\ 3 \overline{)2.000\dots} \\ \underline{18} \\ 20 \\ \underline{20} \\ 20 \end{array}$$

$$0.666\dots = 0.\overline{6}$$

Divide two by three. Note that the remainder will continue to be two; therefore, the decimal answer is a repeating decimal.

Repeating decimals are written with a bar over the repeating digits in the pattern.

Example:

$$\begin{array}{r} 3.0909\dots \\ 34 \\ 11 \overline{)34.0000\dots} \\ \underline{33} \\ 100 \\ \underline{99} \\ 100 \\ \underline{99} \\ 1 \end{array}$$

$$3.0909\dots = 3.\overline{09}$$

Divide 34 by 11. Since 11 does not divide 10, there is a need to bring down an additional zero. Note that there is a portion of the quotient that does not repeat.

The bar indicates that only the 09 repeats.

Convert:

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

6) $1\frac{1}{3}$

2) $\frac{1}{33}$

7) $8\frac{1}{6}$

3) $\frac{4}{9}$

8) $\frac{7}{33}$

4) $\frac{1}{3}$

9) $\frac{7}{42}$

5) $\frac{3}{22}$

10) $4\frac{2}{3}$