7.3 Rename Fractions as Decimals

Use these steps to rename a fraction as a decimal:

1. Divide the numerator by the denominator.

denominator ⟌ numerator

2. Place a decimal point after the dividend, and another above it in the quotient.

3. Divide. Write zeros as needed.

Every fraction can be renamed either as a terminating decimal or a repeating decimal.

A **terminating decimal** has a finite number of nonzero decimal places. So when you divide, the remainder is zero.

A **repeating decimal** has one or more digits that repeat in an unending pattern. When you divide, the remainder is never zero.

Use a repeating bar to symbolize repeating decimals

Ex| $0.033333\ldots = 0.0\overline{3}$

Example: Write each fraction or mixed number as a decimal.

1.) $\frac{2}{9} = 0.\overline{2}$

$$\begin{array}{r} .222 \\ 9\overline{)2.000} \\ -18\downarrow \\ \hline 20 \\ -18 \\ \hline 20 \\ -18 \\ \hline 2 \end{array}$$

2.) $\frac{5}{8} = 0.625$

$$\begin{array}{r} .625 \\ 8\overline{)5.000} \\ -48\downarrow \\ \hline 20 \\ -16 \\ \hline 40 \\ -40 \\ \hline 0 \end{array}$$

3.) $3\frac{6}{12} = 3.5$

$$\begin{array}{r} .5 \\ 12\overline{)6.0} \\ -60 \\ \hline 0 \end{array}$$

Example: Write each fraction or mixed number as a decimal.

4.) $\frac{8}{10} = 0.8$

$$\begin{array}{r} .8 \\ 10\overline{)8.0} \\ -80 \\ \hline 0 \end{array}$$

5.) $6\frac{1}{6} = 6.1\overline{6}$

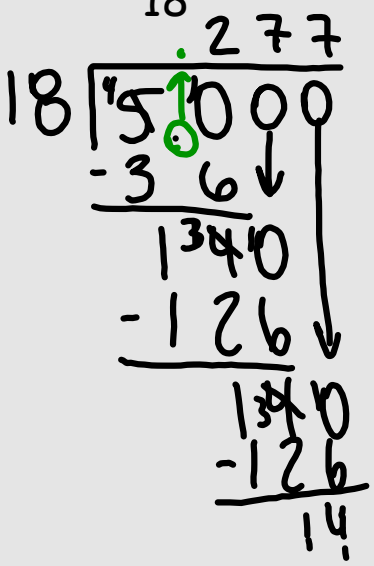
$$\begin{array}{r} .166\ldots \\ 6\overline{)1.000} \\ -6\downarrow \\ \hline 40 \\ -36 \\ \hline 40 \\ -36 \\ \hline 4 \end{array}$$

6.) $\frac{7}{21} = 0.\overline{3}$

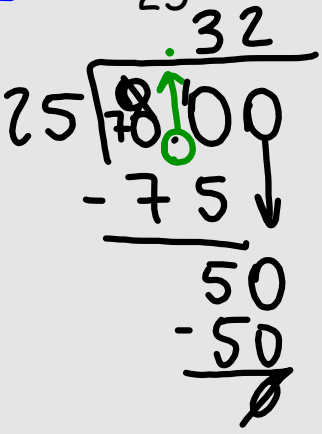
$$\begin{array}{r} .33\ldots \\ 21\overline{)7.00} \\ -63\downarrow \\ \hline 70 \\ -63 \\ \hline 7 \end{array}$$

Example: Write each fraction or mixed number as a decimal.

7.) $1\frac{5}{18} = 1.27$



8.) $\frac{8}{25} = 0.32$



9.) $7\frac{2}{11} = 7.\overline{18}$