

Lesson 4-5

Example 1 Use Mental Math

Write $\frac{2}{5}$ as a decimal.

$$\text{Think } \frac{2}{5} = \frac{2 \times 20}{5 \times 20} = \frac{40}{100}$$

$$\text{So, } \frac{2}{5} = 0.40.$$

Example 2 Use Mental Math

Write $2\frac{3}{4}$ as a decimal.

The mixed number $2\frac{3}{4}$ is $2 + \frac{3}{4}$.

$$2\frac{3}{4} = 2 + \frac{3}{4} \quad \text{Think of it as a sum.}$$

$$= 2 + 0.75 \quad \text{You know that } \frac{3}{4} = 0.75.$$

$$= 2.75 \quad \text{Add mentally.}$$

$$\text{So, } 2\frac{3}{4} = 2.75.$$

Example 3 Use Paper and Pencil or a Calculator

Write $\frac{5}{8}$ as a decimal.

Method 1 Use paper and pencil.

$$\begin{array}{r} 0.625 \\ 8 \overline{)5.000} \\ \underline{-48} \\ 20 \\ \underline{-16} \\ 40 \\ \underline{-40} \\ 0 \end{array} \quad \text{Divide 5 by 8.}$$

Method 2 Use a calculator.

$$5 \div 8 \text{ ENTER } 0.625$$

$$\text{So, } \frac{5}{8} = 0.625.$$

Example 4 Write Fractions as Repeating Decimals

Write $\frac{1}{3}$ as a decimal.

Method 1 Use paper and pencil.

$$\begin{array}{r} 0.333\dots \\ 3 \overline{)1.0000} \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 1 \end{array} \quad \text{Notice that the remainder will never be zero. That is, the division never stops.}$$

Method 2 Use a calculator

$$1 \div 3 \text{ ENTER } 0.333333 \quad \text{When a calculator displays a repeating decimal, the last digit displayed is rounded.}$$

$$\text{So, } \frac{1}{3} = 0.333\dots \text{ or } 0.\overline{3}.$$

Example 5 Use a Power of 10

SCHOOL A classroom roster shows that 0.64 of the students in the class are male. Express this decimal as a fraction in simplest form.

$$0.64 = \frac{64}{100} \quad \text{The final digit, 4, is in the hundredths place.}$$
$$= \frac{16}{25} \quad \text{Simplify.}$$

So, $\frac{16}{25}$ of the students in the class are male.