

Lesson 1 Reteach

Terminating and Repeating Decimals

To write a **fraction as a decimal**, divide the numerator by the denominator. Division ends when the remainder is zero.

You can use **bar notation** to indicate that a number pattern repeats indefinitely. A bar is written over the digits that repeat.

Example 1

Write $\frac{3}{20}$ as a decimal.

$$\begin{array}{r} 0.15 \\ 20 \overline{) 3.00} \\ \underline{20} \\ 100 \\ \underline{100} \\ 0 \end{array}$$

Divide 3 by 20.

The remainder is 0.

So, $\frac{3}{20} = 0.15$. *TERMINAL DECIMAL → THEY END*

Example 2

Write $\frac{5}{9}$ as a decimal.

$$\begin{array}{r} 0.555\dots \leftarrow \text{REPEATING DECIMAL} \\ 9 \overline{) 5.000} \\ \underline{45} \\ 50 \\ \underline{45} \\ 50 \\ \underline{45} \\ 5 \end{array}$$

The remainder after each step is 5.

You can use **bar notation** $0.\overline{5}$ to indicate that 5 repeats forever. So, $\frac{5}{9} = 0.\overline{5}$.

Example 3

Write -0.32 as a fraction in simplest form.

$$\begin{aligned} -0.32 &= -\frac{32}{100} && \text{The 2 is in the hundredths place.} \\ &= -\frac{8}{25} && \text{Simplify.} \end{aligned}$$

Exercises

Write each fraction or mixed number as a decimal. Use bar notation if the decimal is a repeating decimal.

1. $\frac{8}{10} = 8 \div 10 = 0.8$
2. $-\frac{3}{5} = -\frac{3}{5} = -0.6$
3. $\frac{7}{11} = 0.\overline{63}$
4. $4\frac{7}{8} = 4.875$
5. $-\frac{13}{15} = 0.$
6. $3\frac{47}{99} = 3.$

Write each decimal as a fraction in simplest form.

7. $-0.14 = -\frac{14}{100} \div \frac{2}{2} = -\frac{7}{50}$
8. $0.3 = \frac{3}{10}$
9. $0.94 = \frac{94}{100} \div \frac{2}{2} = \frac{47}{50}$

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