5-10

Name _____ Date _____

# Writing Fractions as Decimals

(pages 217–219)

Any fraction can be written as a decimal by using division.

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|---|---|
| **Writing a Fraction as a Decimal** | $\frac{4}{5}$ means $4 \div 5$. Divide 4 by 5, and the quotient 0.8 is the decimal you want to find. |
| **Repeating Decimals** | Decimals like 0.333333 . . . are called **repeating decimals** because the digits repeat. **Bar notation** can be used to indicate that decimals repeat.<br>$0.6666666 \ldots = 0.\overline{6}$, $0.277777 \ldots = 0.2\overline{7}$, $0.737373 \ldots = 0.\overline{73}$<br>Bar notation is useful because some fractions, when written as decimals, are repeating decimals. For example, $\frac{2}{3} = 0.\overline{6}$. |

## EXAMPLES

***Express each fraction as a decimal. Use bar notation for repeating decimals.***

**A** $\frac{1}{5}$

$\frac{1}{5} = 1 \div 5$

$$\begin{array}{r} 0.2 \\ 5\overline{)1.0} \\ -10 \\ \hline 0 \end{array}$$

*Divide 1 by 5.*

*Therefore, $\frac{1}{5} = 0.2$.*

**B** $\frac{1}{3}$

$\frac{1}{3} = 1 \div 3$

$$\begin{array}{r} 0.33 \\ 3\overline{)1.00} \\ -9 \\ \hline 10 \\ -9 \\ \hline 10 \end{array}$$

*Divide 1 by 3.*

*This pattern will keep on forever.*

*$\frac{1}{3}$ is a repeating decimal, $0.\overline{3}$.*

### Try These Together

***Express each fraction or mixed number as a decimal.***

**1.** $\frac{3}{4}$ *HINT: Divide 3 by 4.*

**2.** $2\frac{1}{2}$ *HINT: The whole number is written to the left of the decimal point.*

## PRACTICE

***Express each fraction or mixed number as a decimal. Use bar notation to show a repeating decimal.***

**3.** $4\frac{1}{8}$ **4.** $\frac{1}{6}$ **5.** $\frac{5}{9}$ **6.** $\frac{2}{5}$

**7.** $5\frac{11}{12}$ **8.** $\frac{8}{11}$ **9.** $\frac{8}{9}$ **10.** $6\frac{3}{10}$

**11.** **Standardized Test Practice** Express $2\frac{5}{12}$ as a decimal. Use bar notation if necessary.

**A** 2.4166 **B** $2.41\overline{6}$ **C** $2.\overline{146}$ **D** 2.41666

**Answers:** **1.** 0.75 **2.** 2.5 **3.** 4.125 **4.** $0.1\overline{6}$ **5.** $0.\overline{5}$ **6.** 0.4 **7.** $5.9\overline{16}$ **8.** $0.\overline{72}$ **9.** $0.\overline{8}$ **10.** 6.3 **11.** B