

Study Guide and Intervention

7NS1.3, 7NS1.5

Rational Numbers

To express a fraction as a decimal, divide the numerator by the denominator.

Example 1 Write $\frac{3}{4}$ as a decimal. $\frac{3}{4}$ means $3 \div 4$.The fraction $\frac{3}{4}$ can be written as 0.75, since $3 \div 4 = 0.75$.**Example 2** Write -0.16 as a fraction.

$$\begin{aligned} -0.16 &= -\frac{16}{100} && 0.16 \text{ is 16 hundredths.} \\ &= -\frac{4}{25} && \text{Simplify.} \end{aligned}$$

The decimal -0.16 can be written as $-\frac{4}{25}$.**Example 3** Write $8.\overline{2}$ as a mixed number.Let $N = 8.\overline{2}$ or $8.222\dots$ Then $10N = 82.222\dots$

Subtract.

$$\begin{array}{r} 10N = 82.222\dots \\ -1N = 8.222\dots \\ \hline 9N = 74 \end{array} \quad \begin{array}{l} N = 1N \\ 10N - 1N = 9N \end{array}$$

$$\frac{9N}{9} = \frac{74}{9} \quad \text{Divide each side by 9.}$$

$$N = 8\frac{2}{9} \quad \text{Simplify.}$$

The decimal $8.\overline{2}$ can be written as $8\frac{2}{9}$.**Exercises** Write each fraction or mixed number as a decimal.

1. $\frac{2}{5}$ **0.4**

2. $\frac{3}{10}$ **0.3**

3. $\frac{7}{8}$ **0.875**

4. $2\frac{16}{25}$ **2.64**

5. $-\frac{2}{3}$ **$-0.\overline{6}$**

6. $-1\frac{2}{9}$ **$-1.\overline{2}$**

7. $6\frac{2}{3}$ **$6.\overline{6}$**

8. $-4\frac{3}{11}$ **$-4.\overline{27}$**

Write each decimal as a fraction or mixed number in simplest form.

9. 0.8 **$\frac{4}{5}$**

10. -0.15 **$-\frac{3}{20}$**

11. $0.\overline{1}$ **$\frac{1}{9}$**

12. $1.\overline{7}$ **$1\frac{7}{9}$**