NAME _____ DATE _____ PERIOD _____

3-1 Study Guide and Intervention

Fractions and Decimals

Write Fractions as Decimals Some fractions, such as $\frac{1}{4}$ and $\frac{3}{5}$, can easily be written as decimals by making equivalent fractions with denominators of 10, 100, or 1,000.

All fractions can be written as decimals by dividing the numerator by the denominator. If the division ends or terminates with a remainder of 0, it is a **terminating decimal.** If the decimal number repeats without end it is a **repeating decimal.**

Example 1 **Write $\frac{7}{8}$ as a decimal.**

$\frac{7}{8}$

$$\begin{array}{r} 0.875 \\ 8\overline{)7.000} \\ 6\,4 \\ \hline 60 \\ 56 \\ \hline 40 \\ 40 \\ \hline 0 \end{array}$$

0.875 is a terminating decimal.

Example 2 **Write $\frac{4}{9}$ as a decimal.**

$\frac{4}{9}$

$$\begin{array}{r} 0.444 \\ 9\overline{)4.000} \\ 3\,6 \\ \hline 40 \\ 36 \\ \hline 40 \\ 36 \\ \hline 4 \end{array}$$

0.444... is a repeating decimal. You can indicate that a decimal repeats by writing a bar or line over the repeating digit(s): $\frac{4}{9} = 0.\overline{4}$.

Exercises

Write each fraction as a decimal. Use a bar to show a repeating decimal.

1. $\frac{7}{20}$ **2.** $\frac{2}{11}$ **3.** $\frac{5}{9}$

4. $\frac{5}{6}$ **5.** $\frac{6}{25}$ **6.** $\frac{5}{20}$

7. $\frac{3}{5}$ **8.** $\frac{7}{25}$ **9.** $\frac{4}{15}$

10. $\frac{12}{32}$ **11.** $\frac{9}{10}$ **12.** $\frac{5}{11}$

13. $-\frac{7}{9}$ **14.** $\frac{27}{40}$ **15.** $-\frac{2}{3}$

Lesson 3-1

NAME _____ DATE _____ PERIOD _____

3-1 Study Guide and Intervention *(continued)*

Fractions and Decimals

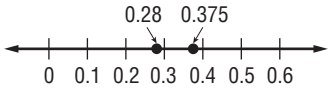
Compare Fractions and Decimals It may be easier to compare numbers when they are written as decimals.

Example 1 **Replace ● with <, >, or = to make 0.28 ● $\frac{3}{8}$ a true sentence.**

$0.28 \bullet \frac{3}{8}$

$0.28 \bullet 0.375$ Write $\frac{3}{8}$ as a decimal.

$0.28 < 0.375$ Compare the tenths place: 2 < 3.

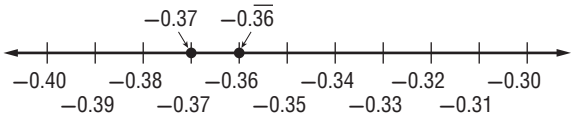


Example 2 **Replace ● with <, >, or = to make −0.37 ● $-\frac{4}{11}$ a true sentence.**

$-0.37 \bullet -\frac{4}{11}$

$-0.37 \bullet -0.\overline{36}$ Write $\frac{4}{11}$ as a decimal.

$-0.37 < -0.\overline{36}$ −0.37 is to the left of $-0.\overline{36}$ on the number line, so $-0.37 < -0.\overline{36}$.



Exercises

Replace each ● with <, >, or = to make a true sentence.

1. $\frac{5}{8} \bullet \frac{6}{9}$
2. $\frac{4}{5} \bullet 0.8$
3. $\frac{7}{8} \bullet \frac{4}{5}$
4. $0.09 \bullet \frac{1}{2}$
5. $0.3 \bullet \frac{1}{3}$
6. $\frac{5}{12} \bullet \frac{16}{40}$
7. $\frac{14}{27} \bullet 0.6$
8. $-\frac{3}{10} \bullet -\frac{2}{5}$
9. $\frac{3}{4} \bullet 0.75$
10. $0.03 \bullet \frac{4}{15}$
11. $\frac{13}{30} \bullet \frac{5}{9}$
12. $-0.55 \bullet -\frac{7}{12}$
13. $0.16 \bullet \frac{4}{25}$
14. $-\frac{11}{40} \bullet -0.02$
15. $\frac{7}{8} \bullet 0.88$