

381

a.

$\frac{1}{6}$

$0.1\overline{6666}\dots$

$6 \overline{) 1.000}$

$\underline{- 6}$

$\underline{40}$
 $\underline{- 36}$
 $\underline{40}$

it's repeating.

$.1\overline{6}$

$\underline{- 36}$

$\underline{40}$

$\underline{- 36}$

~~b. 382~~

p. 382

②

$$\frac{-1}{33}$$

- .03

$$\begin{array}{r} 0.03030303 \\ 33 \overline{) 1.0000} \\ \underline{990} \\ - \\ \underline{100} \\ - 99 \\ \hline 1 \end{array}$$

①

$$\sqrt{7}$$

$$= 2.7$$

$$\begin{array}{r} 0.2777 \dots \\ 9 \overline{) 7.000} \\ \underline{- 63} \\ 70 \\ \underline{- 63} \\ 70 \\ \underline{- 63} \\ 70 \end{array}$$

$$\textcircled{3} -2\frac{5}{6}$$

$$\begin{array}{r} 0.8333\dots \\ 6 \overline{) 5.000} \\ \underline{-48} \\ 20 \\ \underline{-18} \\ 20 \end{array}$$

$$-2.\overline{83}$$

Write each fraction as a decimal. Use bar notation if necessary. (Examples 1–3)

1. $\frac{7}{9} = \underline{0.\overline{7}}$

2. $-\frac{1}{33} = \underline{-0.\overline{03}}$

3. $-2\frac{5}{6} = \underline{-2.\overline{83}}$


4. $\frac{10}{15} = \underline{0.\overline{6}}$

5. $-\frac{4}{5} = \underline{-0.8}$

6. $1\frac{5}{9} = \underline{1.\overline{5}}$

7. Dana bought $\frac{2}{3}$ yard of fabric to make a new purse. Write the amount of fabric she used as a decimal. (Example 4)

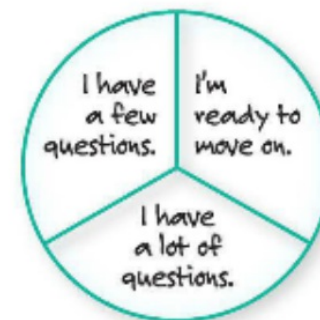
0. $\overline{6}$

8.  **Building on the Essential Question** How are repeating decimals used in real-world situations?

Sample answer: Repeating decimals can be used to describe real-world situations, such as batting averages.

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Write each fraction as a decimal. Use bar notation if necessary.

(Examples 1–3)

1 $\frac{7}{15} = 0.4\bar{6}$



2. $\frac{8}{18} = 0.\bar{4}$

3. $-\frac{8}{12} = -0.\bar{6}$

4. $-\frac{6}{7} = -0.\overline{857142}$

5. $3\frac{15}{44} = 3.34\overline{09}$

6. $-2\frac{5}{22} = -2.\overline{227}$

7. Sarafina had 34 out of 99 hits when she was at bat during the softball season. What was her batting average? (Example 4)

0.34

8. Shiv and his friends ate $3\frac{1}{6}$ pizzas. Write this amount as a decimal. (Example 4)

3.16

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

9. $-0.9 = \underline{-\frac{9}{10}}$

10. $-0.85 = \underline{-\frac{17}{20}}$

11. $-3.8 = \underline{-3\frac{4}{5}}$

Evaluate each expression.

12. $|-2.3| = \underline{2.3}$

13. $|\frac{4}{13}| = \underline{\frac{4}{13}}$

14. $|-8\frac{7}{11}| = \underline{8\frac{7}{11}}$

15 **STEM** There are over 2,700 species of snakes in the world. Over 600 species are venomous. Write the fraction of species that are *not* venomous as a decimal. $0.\overline{7}$

16 **CCSS** **Justify Conclusions** The ratio of the distance around a circle to the distance across a circle through its center is represented by the number π . The number π is a decimal that does not repeat. The fraction $\frac{22}{7}$ is sometimes used as an estimate for π . Is $\frac{22}{7}$ a repeating decimal? Explain.
yes; The fraction $\frac{22}{7}$ can be represented as $3.\overline{142857}$ by dividing with a calculator.

- a. How many total photos were taken? 43
- b. What fraction of the photos were taken after school? Write this fraction as a decimal. Round to the nearest thousandth. $\frac{24}{43}$; 0.558



H.O.T. Problems Higher Order Thinking

18. **CCSS Justify Conclusions** Name a number that is a rational number, but not an integer. Justify your response. Sample answer: $-\frac{2}{3}$; The number is negative, but because the denominator is not 1, it is not an integer.
19. **CCSS Persevere with Problems** Predict whether or not the decimal equivalent to $\frac{17}{36}$ is terminating. Explain your reasoning. Check your prediction with a calculator. $\frac{17}{36}$ is not a terminating decimal since decimals are based on powers of 10 and 36 is not a factor of any power of 10.
20. **CCSS Which One Doesn't Belong?** Identify the decimal equivalent that does *not* have the same characteristic as the other three. Explain.

$$\frac{1}{12}$$

$$\frac{2}{12}$$

$$\frac{3}{12}$$

$$\frac{4}{12}$$

$\frac{3}{12}$; Its decimal equivalent is a terminating decimal.

21. **CCSS Identify Repeated Reasoning** Find the decimal equivalents for $\frac{1}{11}$, $\frac{2}{11}$, and $\frac{3}{11}$. Use the pattern to mentally find the decimal equivalents for $\frac{7}{11}$ and $\frac{8}{11}$. $\frac{1}{11} = 0.\overline{09}$, $\frac{2}{11} = 0.\overline{18}$, $\frac{3}{11} = 0.\overline{27}$; The digits that are repeated are equal to the numerator times 9. So, $\frac{7}{11} = 0.\overline{63}$ and $\frac{8}{11} = 0.\overline{72}$.