Name _____ **Math 7: Converting Fractions to Repeating Decimals**

1. Observe the pattern in the table and answer the questions that follow.

Fraction	$\frac{1}{9}$	$\frac{2}{9}$	$\frac{3}{9}$	$\frac{4}{9}$	$\frac{5}{9}$
Decimal	$0.111\ldots$	$0.222\ldots$	$0.333\ldots$	a	b

a. By continuing the pattern, what number should go in place of a? _____

A) $0.444\ldots$ B) 0.4 C) 0.444

b. By continuing the pattern, what number should go in place of b? _____

A) 0.555 B) $0.555\ldots$ C) 0.5

2. Observe the pattern in the table and answer the questions that follow.

Fraction	$\frac{1}{11}$	$\frac{2}{11}$	$\frac{3}{11}$	$\frac{4}{11}$	$\frac{5}{11}$	$\frac{6}{11}$
Decimal	$0.\overline{09}$	$0.\overline{18}$	$0.\overline{27}$	$0.\overline{36}$	a	b

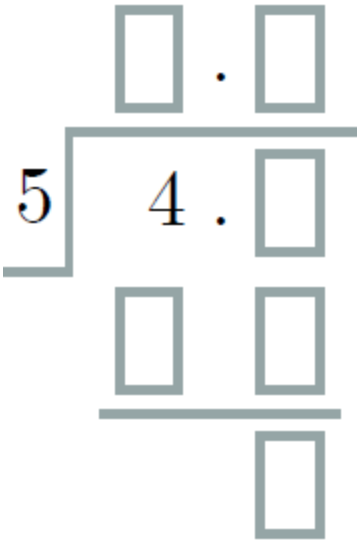
a. By continuing the pattern, what number should go in place of a? _____

A) 0.45 B) 0.54 C) $0.\overline{45}$

b. By continuing the pattern, what number should go in place of b? _____

A) $0.\overline{545}$ B) 0.54 C) $0.\overline{54}$

3. Use long division to convert $-\frac{4}{5}$ to a decimal.

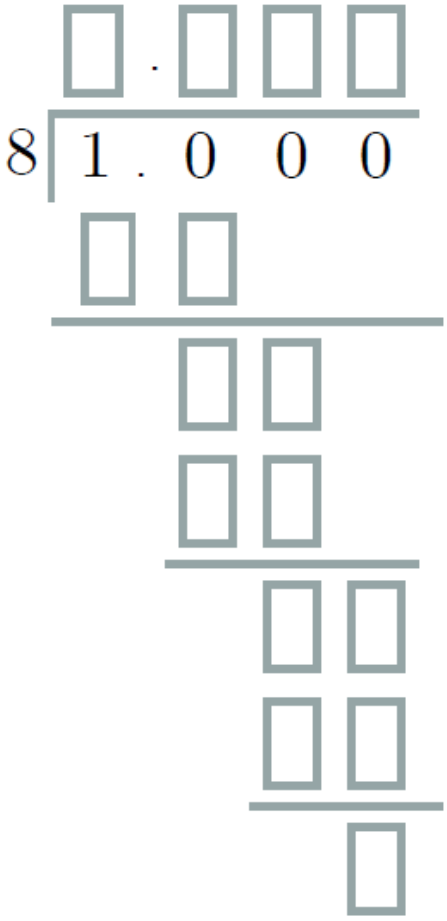


a. First, use long division to convert $\frac{4}{5}$ to a decimal.

b. Therefore, write $-\frac{4}{5}$ as a decimal

$$-\frac{4}{5} = \_\_\_\_\_$$

4. We want to convert $\frac{1}{8}$ into a decimal.



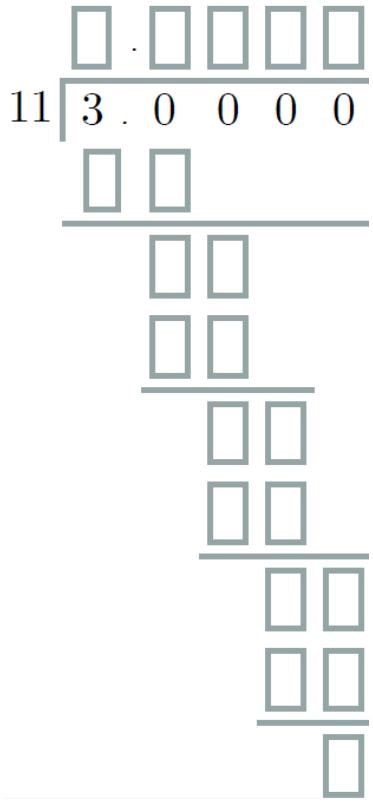
a. First, complete the long division.

b. Therefore, write $\frac{1}{8}$ as a decimal.

$$\frac{1}{8} = \_\_\_\_\_$$

5. We want to convert $\frac{3}{11}$ into a decimal.

a. First, complete the long division.

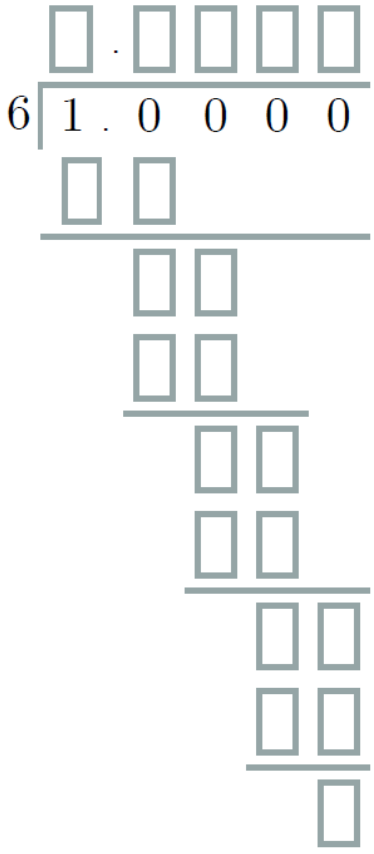


b. Therefore, write $\frac{3}{11}$ as a decimal.

$\frac{3}{11} =$ _____

6. We want to convert $\frac{1}{6}$ into a decimal.

a. First, complete the long division.



b. Therefore, write $\frac{1}{6}$ as a decimal.

$\frac{1}{6} =$ _____

7. Convert $\frac{1}{3}$ to a repeating decimal. _____

8. Convert $\frac{2}{3}$ to a repeating decimal. _____

9. **a.** Express $0.\overline{3}$ as a fraction in simplest form. _____

b. Express $0.\overline{6}$ as a fraction in simplest form. _____

10. Hannah started doing long division to convert $\frac{1}{3}$ into a decimal as shown.

$$\begin{array}{r} 0.33 \\ 3\overline{)\,1.00} \\ \underline{\;\;9\;\;} \\ \;\;10 \\ \underline{\;\;9\;\;} \\ \;\;1 \end{array}$$

a. Which of the following will be the repeated pattern after the decimal place? _____

A) $33003300\ldots$ B) $334334\ldots$

C) $330330\ldots$ D) $333333\ldots$

b. Which of the following will be the decimal for $\frac{-2}{3}$? _____

A) $-2.33333\ldots$ B) $0.06666\ldots$

C) $-0.66666\ldots$ D) $-0.06666\ldots$

11. Convert $\frac{1}{9}$ to a repeating decimal. Show your work. _____

12. Convert $\frac{4}{9}$ to a repeating decimal. Show your work. _____

13. Some rational numbers and their decimal equivalents are included below.

$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{6}$	$\frac{1}{7}$	$\frac{1}{8}$	$\frac{1}{9}$	$\frac{1}{10}$	$\frac{1}{11}$
0.5	$0.\overline{3}$	0.25	0.2	$0.1\overline{6}$	$0.\overline{142857}$	0.125	$0.\overline{1}$	0.1	$0.\overline{09}$

When rational numbers are written as decimals, they can be written as which two kinds of decimals. (Please select *both* answers.) _____

A) Terminating decimal
B) Non-terminating decimal with a repeated pattern
C) Non-terminating decimal with no repeated pattern