

Lesson Summary

The real world requires that we represent rational numbers in different ways depending on the context of a situation. All rational numbers can be represented as either terminating decimals or repeating decimals using the long division algorithm. We represent repeating decimals by placing a bar over the shortest sequence of repeating digits.

Problem Set

1. Convert each rational number into its decimal form.

	$\frac{1}{6} =$ _____	$\frac{1}{9} =$ _____
		$\frac{2}{9} =$ _____
$\frac{1}{3} =$ _____	$\frac{2}{6} =$ _____	$\frac{3}{9} =$ _____
		$\frac{4}{9} =$ _____
	$\frac{3}{6} =$ _____	$\frac{5}{9} =$ _____
$\frac{2}{3} =$ _____	$\frac{4}{6} =$ _____	$\frac{6}{9} =$ _____
		$\frac{7}{9} =$ _____
	$\frac{5}{6} =$ _____	$\frac{8}{9} =$ _____

One of these decimal representations is not like the others. Why?

Enrichment:

2. Chandler tells Aubrey that the decimal value of $-\frac{1}{17}$ is not a repeating decimal. Should Aubrey believe him? Explain.

3. Complete the quotients below without using a calculator, and answer the questions that follow.

- a. Convert each rational number in the table to its decimal equivalent.

$\frac{1}{11} =$	$\frac{2}{11} =$	$\frac{3}{11} =$	$\frac{4}{11} =$	$\frac{5}{11} =$
$\frac{6}{11} =$	$\frac{7}{11} =$	$\frac{8}{11} =$	$\frac{9}{11} =$	$\frac{10}{11} =$

Do you see a pattern? Explain.

- b. Convert each rational number in the table to its decimal equivalent.

$\frac{0}{99} =$	$\frac{10}{99} =$	$\frac{20}{99} =$	$\frac{30}{99} =$	$\frac{45}{99} =$
$\frac{58}{99} =$	$\frac{62}{99} =$	$\frac{77}{99} =$	$\frac{81}{99} =$	$\frac{98}{99} =$

Do you see a pattern? Explain.

- c. Can you find other rational numbers that follow similar patterns?