



**Example 4: Converting Rational Numbers to Decimals Using Long-Division**

Use long division to find the decimal representation of  $\frac{1}{3}$ .

**Exercise 2**

Calculate the decimal values of the fraction below using long division. Express your answers using bars over the shortest sequence of repeating digits.

a.  $\frac{4}{9}$

b.  $\frac{1}{11}$

**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:

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

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