Objective 21

Convert a fraction to a repeating decimal number

Example 1:

Write a decimal number equivalent to $\frac{6}{11}$.

STEP 1

Write a division problem. Use the denominator of the fraction as the divisor, and use the numerator as the dividend.

$11\overline{)6}$

STEP 2

Add a decimal point and several zeros to right of the decimal.

$11\overline{)6.0000}$

STEP 3

Divide. If needed, add more zeros and continue dividing until a repeating pattern is found.

```
  0.5454
11)6.0000
 -55
   50
  -44
    60
   -55
     50
    -44
      6
```

STEP 4

Describe the repeating pattern.

The digits 5 and 4 repeat without end in the order 5, 4, 5, 4 . . . .

STEP 5

Write the quotient using a bar above the repeating digits to show the pattern.

$0.5454\ldots = 0.\overline{54}$

ANSWER

$0.\overline{54}$

Guided Practice:

Write a decimal number equivalent to the fraction.

$\frac{2}{11} =$

$\frac{1}{18} =$

Independent Practice: Write each fraction as a decimal. *Show your work!*

1. $\frac{51}{11} =$
2. $\frac{3}{11} =$
3. $\frac{3}{18} =$
4. $\frac{3}{27} =$
5. $\frac{1}{3} =$
6. $\frac{28}{3} =$
7. $\frac{5}{11} =$
8. $\frac{67}{11} =$

Additional Help:

http://www.virtualnerd.com/pre-algebra/rational-numbers/fraction-to-repeating-decimal-conversion.php
https://learnzillion.com/lesson_plans/6156-convert-unit-fractions-into-repeating-decimals#fndtn-lesson