

Decimal Detectives

Use long division to spot decimals that end or repeat.

GRADE 7 • 7.NS.A.2d

CCSS.Math.Content.7.NS.A.2d "Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats."

NAME _____

DATE _____

PART 1: PRACTICE RULE

Use long division to divide the numerator by the denominator. If the remainder becomes 0, the decimal terminates. If a remainder repeats, the digits repeat. Parentheses show the digit or block of digits that repeats.

WORKED EXAMPLE

Convert $9/25$ to a decimal.

1. 25 is larger than 9, so write 0. and add zeros: 9.00.
2. 25 goes into 90 three times; $90 - 75 = 15$.
3. Bring down 0: 150. 25 goes into 150 six times, remainder 0.

Answer: 0.36

PRACTICE 6 problems

1 Convert $1/8$ to a decimal.

ANSWER _____

2 Convert $-3/20$ to a decimal.

ANSWER _____

3 Convert $5/12$ to a decimal. Use parentheses for repeating digits.

ANSWER _____

4 Convert $-1/6$ to a decimal. Use parentheses for repeating digits.

ANSWER _____

5 Convert $13/40$ to a decimal.

ANSWER _____

6 Convert $2/11$ to a decimal. Use parentheses for repeating digits.

ANSWER _____

APPLY IT Show your work

- 1** A music app shows that $\frac{11}{32}$ of a playlist has downloaded. Write this fraction as a decimal. Does the decimal terminate or repeat?

WORK SPACE

ANSWER _____

- 2** In a rhythm game, Jalen earned $\frac{5}{18}$ of the points needed to unlock a new song. Write this fraction as a decimal. Which digit repeats?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Convert $\frac{11}{30}$ to a decimal. Identify the nonrepeating digit and the repeating digit. Then explain why the decimal does not terminate.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Convert $\frac{1}{8}$ to a decimal.	0.125
2	Convert $-\frac{3}{20}$ to a decimal.	-0.15
3	Convert $\frac{5}{12}$ to a decimal. Use parentheses for repeating digits.	0.41(6)
4	Convert $-\frac{1}{6}$ to a decimal. Use parentheses for repeating digits.	-0.1(6)
5	Convert $\frac{13}{40}$ to a decimal.	0.325
6	Convert $\frac{2}{11}$ to a decimal. Use parentheses for repeating digits.	0.(18)

PART 2 • APPLY IT

1. **0.34375, terminates** Divide 11 by 32 using long division. The remainder becomes 0 after five decimal places.
2. **0.2(7), the digit 7 repeats** Divide 5 by 18. After the first decimal digit, the same remainder occurs again, so 7 repeats.

CHALLENGE

0.3(6). The nonrepeating digit is 3, and the repeating digit is 6. It does not terminate because the remainder 20 repeats after each 6.

Accept equivalent repeating-decimal notation, such as 0.4166... for 0.41(6). Require a negative sign for negative fractions and accept trailing zeros on terminating decimals.