

Writing Fractions as Decimals



In this tutorial, we'll explore solution paths for writing fractions as decimals.

A student has written a fraction as a decimal using a calculator.

- How would I explain the student's thinking as they perform the steps of their solution path?
- How would I explain and demonstrate using my calculator to solve a similar problem?

A student's handwritten work on lined paper showing the fraction $\frac{1}{4}$ being converted to a decimal using a calculator. The input is shown as $\frac{1}{4} = 1 \div 4 =$ with the numbers 1, the division symbol, 4, and the equals sign each in a separate box. Below this, the result is written as $\frac{1}{4} = 0.25$.

A student's handwritten work on lined paper showing the fraction $\frac{3}{8}$ being converted to a decimal using a calculator. The input is shown as $\frac{3}{8} =$ followed by a box for the numerator, a division symbol, a box for the denominator, and an equals sign.

If I did not have a calculator... I could write a fraction as a decimal using long division.

- How would I explain my thinking as I rewrite my fraction in preparation for performing the long division?
- How would I explain the calculations performed using the *long division* approach to solving this problem?

A student's handwritten long division work on lined paper for $\frac{1}{4}$. The problem is written as $\frac{1}{4} = 4 \overline{) 1.00}$. The quotient 0.25 is written above the line. The steps of the division are shown: 4 goes into 10 two times (20), and 4 goes into 20 five times (20), leaving a remainder of 0. A red arrow points to the 8 in the second step.



- How would I explain and demonstrate using the *long division* approach to solve a similar problem?

$$\frac{3}{8} = \boxed{} \overline{) }$$

A classmate used *long division* to write the fraction $\frac{7}{9}$ as an equivalent decimal.

- How would I describe what happens as the division is performed in this example?

$$\begin{array}{r} \frac{7}{9} = 9 \overline{) 7.0000} \\ \underline{63} \\ 70 \\ \underline{63} \\ 70 \\ \underline{63} \\ 70 \end{array}$$

How could I distinguish between the decimal equivalents of each fraction shown below?

$$\begin{array}{r} \frac{1}{4} = 4 \overline{) 1.00} \\ \underline{8} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

$$\begin{array}{r} \frac{3}{8} = 8 \overline{) 3.000} \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

$$\begin{array}{r} \frac{7}{9} = 9 \overline{) 7.0000} \\ \underline{63} \\ 70 \\ \underline{63} \\ 70 \\ \underline{63} \\ 70 \end{array}$$



Another student has determined the decimal equivalent of a fraction using a different approach.

- How would I explain their approach to solving?
- If I choose this approach for writing a fraction as a decimal... will my *equivalent fraction* always have the denominator 100?

$$\frac{1}{4} = \frac{25}{100}$$
$$25 \div 100 = 0.25$$

- How would I determine if it's possible to write an *equivalent fraction* for $\frac{3}{8}$ using the denominator 10, 100, or 1000?
- How does my *equivalent fraction* simplify how I determine the decimal equivalent?

$$\frac{3}{8} = \frac{\square}{\square}$$



How would I explain and demonstrate using an *equivalent fraction* approach to calculate $\frac{11}{20}$ as a decimal value?

$$\frac{11}{20} = \frac{\boxed{}}{\boxed{}}$$

How would I explain and demonstrate using *long division* to calculate $\frac{11}{20}$ as a decimal value?

$$\frac{11}{20} = \boxed{} \overline{) \boxed{}}$$

How would I explain and demonstrate using my *calculator* to write $\frac{11}{20}$ as a decimal value?

$$\frac{11}{20} = \boxed{} \boxed{\div} \boxed{} \boxed{=}$$

Writing Fractions as Decimals-Skills Checklist



I can explain and demonstrate how I use a calculator to determine the decimal equivalent of a fraction

I can explain and demonstrate how I use long division to write the decimal equivalent of a fraction

I can explain and demonstrate how I use equivalent fractions to write a fraction as a decimal

Writing Fractions as Decimals-Worksheet



The Get It Guide™