

Write a Fraction as a Decimal and Visa-Versa – iNA10

Fraction → Decimal

Example

Convert $\frac{7}{8}$ to a decimal.

Solution

$$\frac{7}{8} = 7 \div 8 = 0.875$$

Solution without a Calculator:

$$8 \overline{) 0.875} \quad \begin{array}{l} \text{Without a calculator} \\ \text{we need to do the} \\ \text{division by long hand:} \end{array}$$

Your Turn!!

Convert the following to a decimal a) $\frac{3}{5}$ b) $\frac{22}{8}$

Cancel a Fraction

Before we can convert decimals to fractions we must know how to **cancel** a fraction down to its lowest terms. When a fraction is cancelled the value of new fraction remains the same so we say the fractions are equivalent.

Cancelling Example: $\frac{15}{40} = \frac{3}{8}$

Strategy

To cancel a fraction:

1. Find a number that goes into the top and bottom.
2. Divide top and bottom by this number.
3. If possible repeat step 1.

Your Turn!!

c) Cancel the fraction $\frac{256}{1024}$

Calculator Check: Calculators differ, how does yours work?

To enter fractions into your calculator, use the $\frac{a}{b/c}$ button.

e. g. To enter $\frac{1}{3}$, press 1 $\frac{a}{b/c}$ 3 ; To enter $1\frac{2}{3}$, press 1 $\frac{a}{b/c}$ 2 $\frac{a}{b/c}$ 3

Your Turn!!

d) To cancel a fraction simply enter it and press '='.

Try $\frac{256}{1024}$ to see how easy this is and to check your answer above!

Decimal → Fraction

Example 1

Convert 0.34 to a fraction in its lowest terms.

Solution

$$0.34 = \frac{0.34}{1} = \frac{3.4}{10} = \frac{34}{100} \quad \text{So } 0.34 \text{ as a fraction is } \frac{34}{100}.$$

To get this into its lowest terms we need to **cancel**,

$$\text{we divide top and bottom by 2, so } \frac{34}{100} = \frac{17}{50}.$$

Example 2

Convert 0.875 to a fraction in its lowest terms.

Solution

$$0.875 = \frac{0.875}{1} = \frac{8.75}{10} = \frac{87.5}{100} = \frac{875}{1000} = \dots$$

Strategy

1. Write the decimal over 1.
2. Write the decimal over 10, 100, or 1000 until you have a simple fraction that does not have a decimal point
3. Cancel the fraction if possible.

Your Turn!!

- e) Complete the solution to **Example 2** by cancelling.
f) Convert 0.56 to a fraction in its lowest terms.

Extra Note: Some fractions do not terminate. Which ones?

Simplified fractions which have **denominators** (bottom bit) with **factors of just (1), 2, 5 and factors made from 2 and 5** like 4 (2×2), 10 (2×5) and 20 ($2 \times 2 \times 5$) **will terminate**, for example $\frac{3}{20} = 0.15$; while those with any other factors will produce a recurring decimal, for example $\frac{1}{6} = 0.1666\bar{r}$.

Reminder of Factors: The factors of 6 are 1, 2, 3 & 6 because each of these divides exactly into 6.

The factors of 20 are 1, 2, 4, 5, 10 & 20 because each of these divides exactly into 20.

Extra Your Turn!!

g) Which of the following fractions can be written as terminating decimals? $\frac{1}{8}, \frac{1}{15}, \frac{1}{25}$.

RAPID 'ACID' TEST – Blank out the page above before answering these!

1. Convert $\frac{11}{80}$ to a decimal. 2. Convert 0.44 to a fraction in its lowest terms.

Extra 'ACID' 3. Which of the following fractions can be written as terminating decimals? $\frac{3}{10}, \frac{4}{11}, \frac{1}{12}$.