

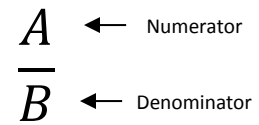
Fractions and Decimals

Name: _____

Date: _____ Period: _____

I. FRACTIONS AND UNIT FRACTIONS

In science, division is always written as a fraction. The number on top is called the **numerator** and the number on the bottom is called the **denominator**. The meaning of a fraction is the number of times the denominator can fit into the numerator. For example, the fraction $3/6$ represents the number of times 6 can fit into 3. Since 6 cannot fit into 3, the result will be a decimal: 0.5. A **unit fraction** is a fraction with a numerator of 1. It is important to memorize unit fractions because they can be used to very easily calculate the decimal value of any fraction.



1. Calculate the decimal value of each unit fraction using long division (round to 2 decimal places). Then add your result to the table on the right side of the page.

$$\frac{1}{2} = \begin{array}{r} \square \square \square \\ \square \overline{) \square \square \square} \\ \square \square \\ \hline \square \square \end{array}$$

$$\frac{1}{3} = \begin{array}{r} \square \square \square \\ \square \overline{) \square \square \square} \\ \square \square \\ \hline \square \square \end{array}$$

$$\frac{1}{4} = \begin{array}{r} \square \square \square \\ \square \overline{) \square \square \square} \\ \square \square \\ \hline \square \square \end{array}$$

$$\frac{1}{5} = \begin{array}{r} \square \square \square \\ \square \overline{) \square \square \square} \\ \square \square \\ \hline \square \square \end{array}$$

$$\frac{1}{9} = \begin{array}{r} \square \square \square \\ \square \overline{) \square \square \square} \\ \square \square \\ \hline \square \square \end{array}$$

$$\frac{1}{10} = \begin{array}{r} \square \square \square \\ \square \overline{) \square \square \square} \\ \square \square \\ \hline \square \square \end{array}$$

$\frac{1}{2} =$	0.	<input type="text"/>	<input type="text"/>
$\frac{1}{3} =$	0.	<input type="text"/>	<input type="text"/>
$\frac{1}{4} =$	0.	<input type="text"/>	<input type="text"/>
$\frac{1}{5} =$	0.	<input type="text"/>	<input type="text"/>
$\frac{1}{9} =$	0.	<input type="text"/>	<input type="text"/>
$\frac{1}{10} =$	0.	<input type="text"/>	<input type="text"/>

II. COUNTING BY UNIT FRACTIONS

2. Use the unit fractions values you just calculated to fill in the table (round to 2 decimal places).

	one	two	three	four	five	six	seven	eight	nine	ten
$1/2$										
$1/3$										
$1/4$										
$1/5$										
$1/9$										
$1/10$										

UNIT FRACTIONS

$$\frac{1}{2} = 0.50$$

$$\frac{1}{3} = 0.\overline{33}$$

$$\frac{1}{4} = 0.25$$

$$\frac{1}{5} = 0.20$$

$$\frac{1}{9} = 0.\overline{11}$$

$$\frac{1}{10} = 0.10$$

III. CONVERTING FRACTIONS INTO DECIMALS

3. To convert fractions into decimals, you must master the following two mental processes:

A. Counting Unit Fractions

Ex. $\frac{3}{5} = \frac{\square}{5} + \frac{\square}{5} + \frac{\square}{5} = \square \left(\frac{\square}{5} \right) =$

(a) $\frac{2}{3} =$

(b) $\frac{3}{4} =$

(c) $\frac{8}{9} =$

B. Finding Remainders

Ex. $\frac{8}{3} = \frac{\square + \square}{3} = \frac{\square}{3} + \frac{\square}{3} =$

(a) $\frac{10}{4} =$

(b) $\frac{35}{9} =$

(c) $\frac{34}{5} =$

4. PRACTICE. In your head, convert each fraction into a decimal (round to 2 decimal places).

(a) Use the counting unit fractions technique.

$$\frac{1}{3} =$$

$$\frac{3}{4} =$$

$$\frac{2}{4} =$$

$$\frac{7}{9} =$$

$$\frac{4}{5} =$$

$$\frac{7}{10} =$$

$$\frac{4}{9} =$$

$$\frac{3}{5} =$$

(b) Use the finding remainders technique.

$$\frac{3}{2} =$$

$$\frac{14}{3} =$$

$$\frac{5}{3} =$$

$$\frac{27}{5} =$$

$$\frac{8}{5} =$$

$$\frac{9}{2} =$$

$$\frac{9}{4} =$$

$$\frac{13}{9} =$$

C. Reducing Fractions

Reduce the fraction until you can use one of the previous two techniques.

$$\frac{9}{12} = \frac{\square}{\square} =$$

$$\frac{35}{15} =$$

(c) Use the reducing fractions technique.

$$\frac{3}{6} =$$

$$\frac{10}{15} =$$

$$\frac{40}{32} =$$

$$\frac{18}{15} =$$

$$\frac{49}{63} =$$

$$\frac{35}{50} =$$