# Memphis Math: Treasure of the Tomb

## Equation Help Contents

### Math Problems & Objectives

# Fractions: Equivalents

**FEQ01** **Multiply to find a fraction equivalent to fraction <1.**
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**FEQ06** **Identify the whole number value of an improper fraction.**
**FEQ07** **Write a whole number as a mixed number, or vice versa.**

# FEQ01

## Multiply to make an equivalent fraction.

***Sample Problem:***

$$\frac{1}{2} \cdot \frac{3}{3} = \frac{[\,]}{[\,]}$$

***Hint:***
Multiply the numerator and denominator by the same number.

$1 \cdot \mathbf{3} = 3$

$2 \cdot \mathbf{3} = 6$

***Solution:***

$$\frac{\mathbf{1}}{\mathbf{2}} \cdot \frac{\mathbf{3}}{\mathbf{3}} = \frac{|\mathbf{3}|}{|\mathbf{6}|}$$

# FEQ02

## Find the number that makes this equivalent fraction.

***Sample Problem:***

$$\frac{1 \cdot \square}{2 \cdot \square} = \frac{3}{6}$$

***Hint:***
Multiply the numerator and denominator by the same number.

$1 \cdot 3 = 3$

$2 \cdot 3 = 6$

***Solution:***

$$\frac{1 \cdot |3|}{2 \cdot |3|} = \frac{3}{6}$$

# FEQ03

## Divide to make an equivalent fraction.

***Sample Problem:***

$$\frac{3 \quad 3 \quad []}{6 \quad 3 \quad []}$$

***Hint:***
Divide the numerator and denominator by the same number.

3 ÷ 3 = 1

6 ÷ 3 = 2

***Solution:***

$$\frac{3 \quad 3 \quad [1]}{6 \quad 3 \quad [2]}$$

## FEQ04

## Find the number that makes this equivalent fraction.

***Sample Problem:***

$$\frac{3 \times [\,] = 1}{6 \times [\,] = 2}$$

***Hint:***
Divide the numerator and denominator by the same number.

$3 \div 3 = 1$

$6 \div 3 = 2$

***Solution:***

$$\frac{3 \times [3] = 1}{6 \times [3] = 2}$$

# FEQ05

## Change the whole number to an improper fraction or change the fraction to a whole number.

***Sample Problem:***

$5 = \frac{[\,]}{1}$ or $5 = \frac{5}{[\,]}$

***Hint:***
A whole number always equals the numerator of a fraction with 1 as the denominator.

5 = numerator

1 = denominator

***Solution:***

$5 = \frac{[5]}{1}$ or $5 = \frac{5}{[1]}$

# FEQ06

## Change this improper fraction to a whole number.

***Sample Problem:***

$\frac{8}{4} = \square$

***Hint:***
A fraction can be read as a division problem.  Divide the numerator by the denominator.

$8 \div 4 = 2$

***Solution:***

$\frac{8}{4} = 2$

## FEQ07

# Change the whole number to an equivalent mixed number or change the mixed number to a whole number.

***Sample Problem:***

$6 = 5\frac{[\,]}{4}$ or $[\,] = 5\frac{4}{4}$

***Hint:***
A fraction equals 1 when the numerator and denominator are the same.

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

Rename the whole number as 1 less, plus a fraction equal to 1.

$6 = 5 + 1$

$6 = 5 + \frac{4}{4}$

***Solution:***

$6 = 5\frac{|4|}{4}$ or $|6| = 5\frac{4}{4}$

# Fractions: Lowest Terms

**FLT01 Simplify a fraction <1.**
**FLT02 Simplify a fraction <1.**
**FLT03 Simplify a fraction <1.**
**FLT04 Simplify a fraction <1.**
**FLT05 Tell whether a fraction <1 is in lowest terms.**
**FLT06 Name a common denominator of two lowest term fractions <1.**
**FLT07 Name a common denominator of two lowest term fractions <1.**
**FLT08 Name a common denominator of two lowest term fractions <1.**

# FLT01

## Reduce this fraction to lowest terms.

***Sample Problem:***

$$\frac{3\ \square}{6\ \square}$$

***Hint:***
Divide the numerator and denominator by the numerator.

3 , 3 = 1

6 , 3 = 2

***Solution:***

$$\frac{3\ [1]}{6\ [2]}$$

## FLT02

# Reduce this fraction to lowest terms.

***Sample Problem:***

$$\frac{6}{54} = \frac{[\,]}{[\,]}$$

***Hint:***
Divide the numerator and denominator by the numerator.

$6 \div 6 = 1$
$54 \div 6 = 9$

***Solution:***

$$\frac{6}{54} = \frac{[1]}{[9]}$$

## FLT03

# Reduce this fraction to lowest terms.

***Sample Problem:***

$$\frac{10}{16} = \frac{[\,]}{[\,]}$$

***Hint:***
Divide the numerator and denominator by the same number. Use the largest number you can.

$10 \div 2 = 5$
$16 \div 2 = 8$

***Solution:***

$$\frac{\mathbf{10}}{\mathbf{16}} = \frac{[\mathbf{5}]}{[\mathbf{8}]}$$

## FLT04

# Reduce this fraction to lowest terms.

***Sample Problem:***

$$\frac{81}{90} = \frac{[\,]}{[\,]}$$

***Hint:***
Divide the numerator and denominator by the same number. Use the largest number you can.

$81 \div 9 = 9$
$90 \div 9 = 10$

***Solution:***

$$\frac{81}{90} = \frac{[9]}{[10]}$$

# FLT05

## Is this fraction in lowest terms?

***Sample Problem:***

$\frac{10}{16}$ : [ ]

***Hint:***
If you can divide the numerator and denominator by the same number it is not in lowest terms. Try dividing by small numbers like 2,3 and 5.

10 , 2 = 5
16 , 2 = 8

***Solution:***

$\frac{10}{16}$ : [no]

# FLT06

## Find the least common denominator.

***Sample Problem:***

$\frac{1}{2}$ and $\frac{3}{5}$ [ ]

***Hint:***
When the denominators have no common factors, multiply the denominators to get the least common denominator.

$\frac{1}{2} \quad \frac{3}{5}$ $2 \cdot 5 = 10$

***Solution:***

$\frac{1}{2}$ and $\frac{3}{5}$ [10]

## FLT07

# Find the least common denominator.

***Sample Problem:***

$\frac{1}{2}$ and $\frac{3}{8}$ [ ]

***Hint:***
If one denominator is a factor of the other, the larger denominator equals the least common denominator.

**2** is a factor of **8**

**8** = least common denominator

***Solution:***

**$\frac{1}{2}$ and $\frac{3}{8}$ [8]**

## FLT08

# Find the least common denominator.

***Sample Problem:***

$\frac{1}{6}$ and $\frac{2}{15}$ [ ]

***Hint:***
List multiples of both denominators until you find the smallest number that is a multiple of both.

6, 12, 18, 24, **30**, 36, …

15, **30**, 45, 60, …

30 = least common denominator

***Solution:***

$\frac{\mathbf{1}}{\mathbf{6}}$ **and** $\frac{\mathbf{2}}{\mathbf{15}}$ **[30 ]**

# Fractions: Comparing

**FCM01 Compare two fractions <1 with a common denominator.**
**FCM02 Compare two fractions <1 with different denominators.**
**FCM03 Compare two proper mixed numbers with a common denominator.**
**FCM04 Compare two proper mixed numbers with the same whole number.**
**FCM05 Compare two fractions <1.**
**FCM06 Compare two fractions <1.**
**FCM07 Compare two proper mixed numbers with different denominators.**

## FCM01

## Use <,>, or = to compare these fractions.

***Sample Problem:***

$\frac{15}{18} \; [\;] \; \frac{7}{18}$

***Hint:***
When the denominators are equal, compare the numerators.

$15 > 7$

$18 = 18$

***Solution:***

$\frac{\mathbf{15}}{\mathbf{18}} > \frac{\mathbf{7}}{\mathbf{18}}$

# FCM02

## Use <,>, or = to compare these fractions.

***Sample Problem:***

$\frac{1}{3}$ [ ] $\frac{1}{5}$

***Hint:***
When the numerators both equal 1, compare the denominators. The largest fraction has the smallest denominator.

1 = 1
Thirds > Fifths
[ ][ ] [][][][][]

***Solution:***

$\frac{1}{3} > \frac{1}{5}$

# FCM03

## Use <,>, or = to compare these mixed numbers.

***Sample Problem:***

$6\frac{1}{3}$ [ ] $5\frac{2}{3}$

***Hint:***
Look at the whole numbers. The mixed number with the largest whole number is greater.

6 > 5

***Solution:***

$6\frac{1}{3}$ |>| $5\frac{2}{3}$

## FCM04

## Use <,>, or = to compare these mixed numbers.

***Sample Problem:***

$6\frac{1}{3}$ [ ] $6\frac{2}{3}$

***Hint:***
When the whole numbers are equal, compare the fractions.

$\frac{1}{3} < \frac{2}{3}$

***Solution:***

$6\frac{1}{3}$ |<| $6\frac{2}{3}$

# FCM05

## Find a common denominator then compare using <,>, or =.

***Sample Problem:***

$\frac{1}{5}$ [ ] $\frac{6}{10}$

***Hint:***
Reduce both fractions to lowest terms to find a common denominator.

$\frac{1}{5} = \frac{\mathbf{1}}{\mathbf{5}}$ $\frac{6}{10} = \frac{2}{\mathbf{2}} \cdot \frac{\mathbf{3}}{\mathbf{5}}$ $\frac{\mathbf{1}}{\mathbf{5}} < \frac{\mathbf{3}}{\mathbf{5}}$

***Solution:***

$\frac{\mathbf{1}}{\mathbf{5}} < \frac{\mathbf{6}}{\mathbf{10}}$

# FCM06

## Find a common denominator then compare using <,>, or =.

***Sample Problem:***

$\frac{2}{3} [\ ] \frac{8}{12}$

***Hint:***
Reduce both fractions to lowest terms to find a common denominator.

$\frac{2}{3} \quad \frac{8}{12} = \frac{4}{4} = \frac{2}{3} \quad \frac{2}{3} = \frac{2}{3}$

***Solution:***

$\frac{2}{3} = \frac{8}{12}$

# FCM07

## Find a common denominator then compare using <,>, or =.

***Sample Problem:***

$6\frac{1}{3}$ [ ] $6\frac{4}{6}$

***Hint:***
Reduce both fractions to lowest terms to find a common denominator.

$\frac{1}{3} = \frac{1}{3}$ $\frac{4}{6} = \frac{2}{2} = \frac{2}{3}$ $\frac{1}{3} < \frac{2}{3}$

***Solution:***

$6\frac{1}{3}$ |<| $6\frac{4}{6}$

# Fractions: Improper and Mixed Numbers

**FMX01 Determine if a given fraction is proper.**
**FMX02 Write an imporper fraction as a whole or mixed number.**
**FMX03 Write an improper fraction as a whole or mixed number.**
**FMX04 Write a proper mixed number as an improper fraction.**
**FMX05 Rename a mixed proper fraction to a mixed improper fraction.**

# FMX01

## Is this a proper fraction?

***Sample Problem:***

$\frac{5}{4}$ [ ]

***Hint:***
A fraction is proper if the numerator is less than the denominator.

$5 > 4$ Improper fraction

***Solution:***

$\frac{5}{4}$ |no|

## FMX02

## Change this improper fraction to a whole or mixed number. Reduce your answer to lowest terms.

***Sample Problem:***

$\frac{12}{5} = [\,]\frac{[\,]}{[\,]}$

***Hint:***
Divide the numerator by the denominator to get the whole number. Place the remainder over the denominator to get the fraction.

$5\overline{)12}\ \begin{matrix}2\text{ r }2\end{matrix} \quad = \quad 2\frac{2}{5}$

***Solution:***

$\frac{12}{5} = [2]\frac{[2]}{[5]}$

## FMX03

## Change this improper fraction to a whole or mixed number. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{42}{8} = [\,]\frac{[\,]}{[\,]}$$

***Hint:***
Divide the numerator by the denominator to get the whole number. Place the remainder over the denominator to get the fraction. Then reduce.

$$\begin{array}{r} 5 \text{ r } 2 \\ 8\overline{)42} \end{array} = 5\frac{2}{8} = 5\frac{1}{4}$$

***Solution:***

$$\frac{42}{8} = [5]\frac{[1]}{[4]}$$

# FMX04

## Change this mixed number to an improper fraction.

***Sample Problem:***

$3\frac{2}{3} = \frac{[\,]}{3}$

***Hint:***
Multiply the whole number by the denominator, then add the numerator. Place this number over the denominator.

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

$3 \cdot 3 = 9$ $9 + 2 = 11$ $\frac{11}{3}$

***Solution:***

$3\frac{2}{3} = \frac{|11|}{3}$

# FMX05

## Change this mixed number to an equivalent mixed number.

***Sample Problem:***

$3\frac{2}{3} \rightarrow 2\frac{[\,]}{3}$

***Hint:***
Rename the whole number as 1 less plus a fraction equal to one. Then add the fractions.

$3\frac{2}{3} \quad 2 + 1 + \frac{2}{3}$

$3\frac{2}{3} \rightarrow 2 + \frac{3}{3} + \frac{2}{3} = 2\frac{5}{3}$

***Solution:***

$3\frac{2}{3} \rightarrow 2\frac{|5|}{3}$

# Fractions: Finding the Fraction of a Number

**FOF01 Find this fraction of a whole number.**
**FOF02 Find this fraction of a whole number.**
**FOF03 Find this fraction of a whole number.**

# FOF01

## Find this fraction of the whole number.

***Sample Problem:***

$\frac{1}{3}$ of 18 = []

***Hint:***
When the numerator equals one, divide the whole number by the denominator.

18 ÷ 3 = **6**

***Solution:***

$\frac{1}{3}$ of 18 = |6|

# FOF02

## Find this fraction of the whole number.

***Sample Problem:***

$\frac{1}{10}$ of 50 = []

***Hint:***
When the numerator equals one, divide the whole number by the denominator.

50 ÷ 10 = **5**

***Solution:***

$\frac{1}{10}$ of **50** = **|5|**

# FOF03

## Find this fraction of the whole number.

***Sample Problem:***

$\frac{2}{5}$ of 20 = []

***Hint:***
Divide the whole number by the denominator, then multiply by the numerator.

**20 ÷ 5 = 4  4 × 2 = 8**

***Solution:***

$\frac{2}{5}$ of 20 = |8|

## FAS22

## Do this subtraction. Reduce your answer to lowest terms.

***Sample Problem:***

$$1 - \frac{6}{7} = \frac{[\,]}{[\,]}$$

***Hint:***
Rename the 1 as a fraction equal to one. This fraction should have the same numerator and denominator as the other fraction. Then subtract.

$$1 - \frac{7}{7} \qquad \frac{7}{7} - \frac{6}{7} = \frac{1}{7}$$

***Solution:***

$$1 - \frac{6}{7} = \frac{[1]}{[7]}$$

## FAS01

## Add these fractions.

***Sample Problem:***

$$\frac{1}{3} + \frac{1}{3} = \frac{[\,]}{[\,]}$$

***Hint:***
Add the numerators.  The denominators stay the same.

$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$

***Solution:***

$$\frac{1}{3} + \frac{1}{3} = \frac{[2]}{[3]}$$

## FAS02

## Add these fractions.

***Sample Problem:***

$$\begin{array}{r} \frac{1}{3} \\ +\ \frac{1}{3} \\ \hline \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Add the numerators.  The denominators stay the same.

$$\begin{array}{r} \frac{1}{3} \\ +\ \frac{1}{3} \\ \hline \frac{2}{3} \end{array}$$

***Solution:***

$$\begin{array}{r} \frac{1}{3} \\ +\ \frac{1}{3} \\ \hline \frac{|2|}{|3|} \end{array}$$

## FAS03

## Add these fractions. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{1}{4} + \frac{1}{4} = \frac{[\,]}{[\,]}$$

***Hint:***
Add the numerators. Divide the numerator and denominator by the same number to reduce.

$$\frac{1}{4} + \frac{1}{4} = \frac{2}{4} \qquad \frac{2}{4} \div \frac{2}{2} = \frac{1}{2}$$

***Solution:***

$$\frac{1}{4} + \frac{1}{4} = \frac{[1\,]}{[2\,]}$$

**FML01**

## Multiply these numbers.

***Sample Problem:***

$\frac{2}{5}$ 10 = []

***Hint:***
Multiply the whole number by the numerator. Then divide by the denominator.

2 · 10 = 20 20 ÷ 5 = 4

***Solution:***

$\frac{2}{5}$ 10 = |4|

## FAS04

## Add these fractions. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} \frac{1}{4} \\ +\ \frac{1}{4} \\ \hline \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Add the numerators. Divide the numerator and denominator by the same number to reduce.

$$\begin{array}{r} \frac{1}{4} \\ +\ \frac{1}{4} \\ \hline \frac{2}{4} \end{array} \qquad \frac{2}{4} = \frac{2 \div 2}{4 \div 2} = \frac{1}{2}$$

***Solution:***

$$\begin{array}{r} \frac{1}{4} \\ +\ \frac{1}{4} \\ \hline \frac{|1|}{|2|} \end{array}$$

## FAS05

## Do this subtraction.

***Sample Problem:***

$$\frac{2}{3} - \frac{1}{3} = \frac{[\,]}{[\,]}$$

***Hint:***
Subtract the numerators. The denominators stay the same.

$$\frac{2}{3} - \frac{1}{3} = \frac{1}{3}$$

***Solution:***

$$\frac{2}{3} - \frac{1}{3} = \frac{[1]}{[3]}$$

## FAS06

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} \frac{2}{3} \\ -\ \frac{1}{3} \\ \hline \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Subtract the numerators. The denominators stay the same.

$$\begin{array}{r} \frac{2}{3} \\ -\ \frac{1}{3} \\ \hline \frac{1}{3} \end{array}$$

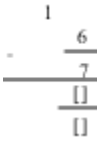
***Solution:***

$$\begin{array}{r} \frac{2}{3} \\ -\ \frac{1}{3} \\ \hline \frac{|1|}{|3|} \end{array}$$

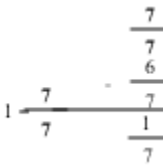
## FAS21

## Do this subtraction. Reduce your answer to lowest terms.

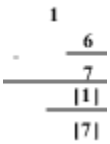
***Sample Problem:***



***Hint:***
Rename the 1 as a fraction equal to one. This fraction should have the same numerator and denominator as the other fraction. Then subtract.



***Solution:***



## FAS07

## Do this subtraction. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{7\ 1\ []}{8\ 8\ []}$$

***Hint:***
Subtract the numerators. Divide the numerator and denominator by the same number to reduce.

$$\frac{7\ 1\ 6}{8\ 8\ 8} \qquad \frac{6\ 2\ 3}{8\ 2\ 4}$$

***Solution:***

$$\frac{7\ 1\ [3]}{8\ 8\ [4]}$$

## FAS08

## Do this subtraction. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{7}{8} - \frac{1}{8} = \frac{[\,]}{[\,]}$$

***Hint:***
Subtract the numerators. Divide the numerator and denominator by the same number to reduce.

$$\frac{7}{8} - \frac{1}{8} = \frac{6}{8} = \frac{2 \cdot 3}{2 \cdot 4}$$

***Solution:***

$$\frac{7}{8} - \frac{1}{8} = \frac{|3|}{|4|}$$

## FAS09

## Add these fractions. Write your answer as a mixed number reduced to lowest terms.

***Sample Problem:***

$\frac{7}{8} + \frac{5}{8} = \frac{[\,]}{[\,]}$

***Hint:***
Add the numerators.

$\frac{7}{8} + \frac{5}{8} = \frac{12}{8}$

Divide the numerator by the denominator to make a mixed number. Then reduce.

$8\overline{)12} \quad 1 \text{ r } 4 \qquad = 1\frac{4}{8} = 1\frac{1}{2}$

***Solution:***

$\frac{7}{8} + \frac{5}{8} = 1\frac{1}{2}$

## FAS10

**Add these fractions. Write your answer as a mixed number reduced to lowest terms.**

***Sample Problem:***

$$\begin{array}{r} \frac{7}{8} \\ + \frac{5}{8} \\ \hline \square\frac{\square}{\square} \end{array}$$

***Hint:***
Add the numerators.

$$\begin{array}{r} \frac{7}{8} \\ + \frac{5}{8} \\ \hline \frac{12}{8} \end{array}$$

Divide the numerator by the denominator to make a mixed number. Then reduce.

$$8\overline{)12} \quad \begin{array}{l} 1 \text{ r } 4 \\ \end{array} \quad = \quad 1\frac{4}{8} \quad = \quad 1\frac{1}{2}$$

***Solution:***

$$\begin{array}{r} \frac{7}{8} \\ + \frac{5}{8} \\ \hline 1\frac{1}{2} \end{array}$$

## DAS03

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} 9.8 \\ -\ \ .1 \\ \hline [\,] \end{array}$$

***Hint:***
Subtract 1 from the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

$$\begin{array}{r} 9\ .\ 8 \\ -\ \ \ .\ 1 \\ \hline 9\ \ .7 \end{array}$$

***Solution:***

$$\begin{array}{r} 9.8 \\ -\ \ .1 \\ \hline [9.7] \end{array}$$

## FAS11

## Add these mixed numbers. Reduce your answer to lowest terms.

***Sample Problem:***

$$1\frac{1}{4} + 2\frac{1}{4} = \square\frac{\square}{\square}$$

***Hint:***
Add the fractions and reduce. Then add the whole numbers.

$$1\frac{1}{4} + 2\frac{1}{4} = \square\frac{2}{4} = \square\frac{1}{2}$$

$$1\frac{1}{4} + 2\frac{1}{4} = 3\frac{1}{2}$$

***Solution:***

$$1\frac{1}{4} + 2\frac{1}{4} = |3|\frac{|1|}{|2|}$$

## FAS12

## Add these mixed numbers. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 1\ \frac{1}{4} \\ +\ 2\ \frac{1}{4} \\ \hline [\,]\ \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Add the fractions and reduce. Then add the whole numbers.

$$\begin{array}{r} 1\ \frac{1}{4} \\ +\ 2\ \frac{1}{4} \\ \hline [\,]\ \frac{2}{4} \end{array} \quad - \quad [\,]\ \frac{1}{2} \qquad \begin{array}{r} 1\ \frac{1}{4} \\ +\ 2\ \frac{1}{4} \\ \hline 3\ \frac{1}{2} \end{array}$$

***Solution:***

$$\begin{array}{r} 1\ \frac{1}{4} \\ +\ 2\ \frac{1}{4} \\ \hline [3]\ \frac{[1]}{[2]} \end{array}$$

## DML02

## Multiply these numbers.

***Sample Problem:***

$$\begin{array}{r} 0.5 \\ \times \quad 9 \\ \hline [\,] \end{array}$$

***Hint:***
Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a tenth and the other is a whole number, the factors have a total of 1 digit right of the decimal point. The product will also have 1 digit right of the decimal point.

$$\begin{array}{r} 0.5 \\ \times \quad 9 \\ \hline 45 \end{array} = 4.5$$

***Solution:***

$$\begin{array}{r} 0.5 \\ \times \quad 9 \\ \hline [4.5] \end{array}$$

## FAS13

## Do this subtraction. Reduce your answer to lowest terms.

***Sample Problem:***

$$3\frac{3}{4} - 1\frac{1}{4} = \square\frac{\square}{\square}$$

***Hint:***
Subtract the fractions and reduce. Then subtract the whole numbers.

$$3\frac{3}{4} - 1\frac{1}{4} = 2\frac{2}{4} = 2\frac{1}{2}$$

$$3\frac{3}{4} - 1\frac{1}{4} = 2\frac{1}{2}$$

***Solution:***

$$3\frac{3}{4} - 1\frac{1}{4} = 2\frac{|1|}{|2|}$$

## FAS14

## Do this subtraction. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 3\frac{3}{4} \\ -\ 1\frac{1}{4} \\ \hline \square\frac{\square}{\square} \end{array}$$

***Hint:***
Subtract the fractions and reduce. Then subtract the whole numbers.

$$\begin{array}{r} 3\frac{3}{4} \\ -\ 1\frac{1}{4} \\ \hline \square\frac{2}{4} \end{array} \quad - \square\frac{1}{2} \qquad \begin{array}{r} 3\frac{3}{4} \\ -\ 1\frac{1}{4} \\ \hline 2\frac{1}{2} \end{array}$$

***Solution:***

$$\begin{array}{r} 3\frac{3}{4} \\ -\ 1\frac{1}{4} \\ \hline [2]\frac{[1]}{[2]} \end{array}$$

## FAS15

## Do this subtraction.

***Sample Problem:***

$6\frac{2}{3} - 4 = \frac{[\,]}{[\,]}$

***Hint:***
Subtract the whole numbers. The fraction stays the same.

$6\frac{2}{3} - 4 = 2\frac{2}{3}$

***Solution:***

$6\frac{2}{3} - 4 - \frac{|2|}{|3|}$

# Fractions: Multiplication

**FML01** **Multiply a lowest terms fraction and a whole number.**
**FML02** **Find the denominator when multiplying a fraction by a whole number.**
**FML03** **Multiply two lowest terms fractions <1. Reducing required.**
**FML04** **Multiply two lowest terms fractions <1. Reducing required.**
**FML05** **Multiply two lowest terms fractions <1. Reducing required. One numerator and the other denominator are the same.**
**FML06** **Multiply two lowest terms fractions <1. Reducing required. Fractions can be easily simplified before multiplication.**
**FML07** **Multiply a mixed number and a fraction <1. Reducing required.**
**FML08** **Multiply two mixed numbers. Reducing required.**

## FAS16

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} 6\ \frac{2}{3} \\ -\ \ 4 \\ \hline [\,]\ \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Subtract the whole numbers. The fraction stays the same.

$$\begin{array}{r} 6\ \frac{2}{3} \\ -\ \ 4 \\ \hline 2\ \frac{2}{3} \end{array}$$

***Solution:***

$$\begin{array}{r} 6\ \frac{2}{3} \\ -\ \ 4 \\ \hline |2|\ \frac{|2|}{|3|} \end{array}$$

## FAS17

## Add these fractions.

***Sample Problem:***

$\frac{3}{8} + \frac{5}{8} = []$

***Hint:***
Add the fractions to get a sum equal to 1.  Then add 1 to the whole number.

$\frac{3}{8} + \frac{5}{8} + \frac{8}{8} \quad \frac{8}{8} = 1$

$4 + 1 = 5$

***Solution:***

$\frac{3}{8} + \frac{5}{8} = |5|$

## FAS18

## Add these fractions.

***Sample Problem:***

$$4\frac{3}{8} + \frac{5}{8} = \boxed{\phantom{0}}$$

***Hint:***
Add the fractions to get a sum equal to 1.  Then add 1 to the whole number.

$$4\frac{3}{8} + \frac{5}{8} = 4\frac{8}{8} = 4 + 1 = 5$$

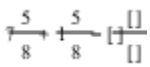
***Solution:***

$$4\frac{3}{8} + \frac{5}{8} = \boxed{5}$$

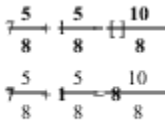
## FAS19

## Add these mixed numbers. Reduce your answer to lowest terms.

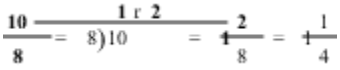
***Sample Problem:***



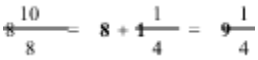
***Hint:***
Add the fractions to get an improper fraction, then add the whole numbers.



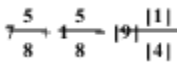
Divide the numerator by the denominator to make the improper fraction a mixed number. Then reduce.



Add the whole numbers.



***Solution:***



## FAS20

## Add these mixed numbers. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 7\ \frac{5}{8} \\ +\ 1\ \frac{5}{8} \\ \hline [\,]\ \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Add the fractions to get an improper fraction, then add the whole numbers.

$$\begin{array}{r} 7\ \frac{5}{8} \\ +\ 1\ \frac{5}{8} \\ \hline [\,]\ \frac{10}{8} \end{array} \qquad \begin{array}{r} 7\ \frac{5}{8} \\ +\ 1\ \frac{5}{8} \\ \hline 8\ \frac{10}{8} \end{array}$$

Divide the numerator by the denominator to make the improper fraction a mixed number. Then reduce.

$$\frac{10}{8} = 8\overline{)10} \text{ r } 2 = 1\frac{2}{8} = 1\frac{1}{4}$$

Add the whole numbers.

$$\begin{array}{r} 8 \\ +\ 1\ \frac{1}{4} \\ \hline 9\ \frac{1}{4} \end{array} \qquad 8\ \frac{10}{8}$$

***Solution:***

$$\begin{array}{r} 7\ \frac{5}{8} \\ +\ 1\ \frac{5}{8} \\ \hline |9|\ \frac{|1|}{|4|} \end{array}$$

## FAS23

## Do this subtraction. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 8 \\ -\ \frac{4}{7} \\ \hline [\,]\ \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Rename the whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction.

$$8 = 7 + 1$$

$$8 = 7 + \frac{7}{7}$$

Subtract the fractions. The whole number stays the same.

$$\begin{array}{r} 7\ \frac{7}{7} \\ -\ \frac{4}{7} \\ \hline 7\ \frac{3}{7} \end{array}$$

***Solution:***

$$\begin{array}{r} 8 \\ -\ \frac{4}{7} \\ \hline |7|\ \frac{|3|}{|7|} \end{array}$$

## FAS24

## Do this subtraction. Reduce your answer to lowest terms.

***Sample Problem:***

$$8 - \frac{4}{7} = [\,]\frac{[\,]}{[\,]}$$

***Hint:***
Rename the whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction.

$$8 = 7 + 1$$

$$8 = 7 + \frac{7}{7}$$

Subtract the fractions. The whole number stays the same.

$$7\frac{7}{7} - \frac{4}{7} = 7\frac{3}{7}$$

***Solution:***

$$8 - \frac{4}{7} = [7]\frac{[3]}{[7]}$$

## FAS25

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} 12 \\ -\ 5\frac{3}{7} \\ \hline \square\frac{\square}{\square} \end{array}$$

***Hint:***
Rename the first whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction.

$$12 = 11 + 1$$

$$12 = 11 + \frac{7}{7}$$

Subtract the fractions. Then subtract the whole numbers.

$$\begin{array}{r} 11\frac{7}{7} \\ -\ 5\frac{3}{7} \\ \hline \square\frac{4}{7} \end{array} \qquad \begin{array}{r} 11\frac{7}{7} \\ -\ 5\frac{3}{7} \\ \hline 6\frac{4}{7} \end{array}$$

***Solution:***

$$\begin{array}{r} 12 \\ -\ 5\frac{3}{7} \\ \hline \square 6 \square\frac{\square 4 \square}{\square 7 \square} \end{array}$$

## FAS26

## Do this subtraction.

***Sample Problem:***

$12 - 5\frac{3}{7} = [\,]\frac{[\,]}{[\,]}$

***Hint:***
Rename the first whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction.

$12 = 11 + 1$

$12 = 11 + \frac{7}{7}$

Subtract the fractions. Then subtract the whole numbers.

$11\frac{7}{7} - 5\frac{3}{7} = [\,]\frac{4}{7}$

$11\frac{7}{7} - 5\frac{3}{7} = 6\frac{4}{7}$

***Solution:***

$12 - 5\frac{3}{7} = [6]\frac{|4|}{|7|}$

## FAS27

## Rename the first mixed number so that you can subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$3\frac{1}{4} - 1\frac{3}{4} = [\,]\frac{[\,]}{[\,]}$$

***Hint:***
Rename the first whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction. Then add the fractions.

$$3\frac{1}{4} = 2 + 1 + \frac{1}{4}$$

$$3\frac{1}{4} = 2 + \frac{4}{4} + \frac{1}{4}$$

$$3\frac{1}{4} = 2 + \frac{5}{4} = 2\frac{5}{4}$$

Subtract the fractions and reduce. Then subtract the whole numbers.

$$2\frac{5}{4} - 1\frac{3}{4} = [\,]\frac{2}{4} = [\,]\frac{1}{2}$$

$$2\frac{5}{4} - 1\frac{3}{4} = 1\frac{1}{2}$$

***Solution:***

$$3\frac{1}{4} - 1\frac{3}{4} = [1]\frac{|1|}{|2|}$$

## FAS28

## Rename the first mixed number so that you can subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 3\frac{1}{4} \\ -\ 1\frac{3}{4} \\ \hline \square\frac{\square}{\square} \end{array}$$

***Hint:***
Rename the first whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction. Then add the fractions.

$$3\frac{1}{4} = 2 + 1 + \frac{1}{4}$$

$$3\frac{1}{4} = 2 + \frac{4}{4} + \frac{1}{4}$$

$$3\frac{1}{4} = 2 + \frac{5}{4} = 2\frac{5}{4}$$

Subtract the fractions and reduce. Then subtract the whole numbers.

$$\begin{array}{r} 2\frac{5}{4} \\ -\ 1\frac{3}{4} \\ \hline \square\frac{2}{4} \end{array} = \square\frac{1}{2} \qquad \begin{array}{r} 2\frac{5}{4} \\ -\ 1\frac{3}{4} \\ \hline 1\frac{1}{2} \end{array}$$

***Solution:***

$$\begin{array}{r} 3\frac{1}{4} \\ -\ 1\frac{3}{4} \\ \hline 1\frac{1}{2} \end{array}$$

## FAS29

## Find a common denominator then add. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} \frac{1}{5} \\ +\ \frac{3}{10} \\ \hline \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 10

$$\frac{\mathbf{1}\ \ 2\ \ \mathbf{2}}{\mathbf{5}\ \ 2\ \ \mathbf{10}} \quad \frac{3\ \ \mathbf{3}}{10\ \ \mathbf{10}}$$ .

Add the fractions, then reduce.

$$\begin{array}{r} \frac{\mathbf{2}}{10} \\ +\ \frac{\mathbf{3}}{10} \\ \hline \frac{\mathbf{5}}{10} \end{array} \quad = \frac{1}{2}$$

***Solution:***

$$\begin{array}{r} \frac{\mathbf{1}}{\mathbf{5}} \\ +\ \frac{\mathbf{3}}{\mathbf{10}} \\ \hline \frac{|\mathbf{1}|}{|\mathbf{2}|} \end{array}$$

## FAS30

## Find a common denominator then add. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{1}{5} + \frac{3}{10} = \frac{[\,]}{[\,]}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 10

$$\frac{\mathbf{1}}{\mathbf{5}} \cdot \frac{2}{2} = \frac{\mathbf{2}}{\mathbf{10}} \qquad \frac{3}{10} \cdot \frac{\mathbf{3}}{\mathbf{10}}$$

.

Add the fractions, then reduce.

$$\frac{\mathbf{2}}{10} + \frac{\mathbf{3}}{10} - \frac{\mathbf{5}}{10} = \frac{1}{2}$$

***Solution:***

$$\frac{\mathbf{1}}{\mathbf{5}} + \frac{\mathbf{3}}{\mathbf{10}} = \frac{\mathbf{|1|}}{\mathbf{|2|}}$$

## FAS31

## Find a common denominator then add. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} \frac{5}{8} \\ + \frac{7}{16} \\ \hline \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 16

$$\frac{5}{8} \cdot \frac{2}{2} = \frac{10}{16} \qquad \frac{7}{16} \cdot \frac{7}{7} = \frac{7}{16}$$

.

Add the fractions, then divide the numerator by the denominator to express the answer as a mixed number.

$$\begin{array}{r} \frac{10}{16} \\ + \frac{7}{16} \\ \hline \frac{17}{16} \end{array} \qquad 16\overline{)17} \text{ r } 1 \qquad = 1\frac{1}{16}$$

***Solution:***

$$\begin{array}{r} \frac{5}{8} \\ + \frac{7}{16} \\ \hline \frac{|1|}{|16|} \end{array}$$

## FAS33

## Find a common denominator then add. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 6\,\frac{1}{4} \\ +\ 2\,\frac{5}{12} \\ \hline [\,]\,\frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 12

$$\frac{\mathbf{1}\ \ 3\ \ \mathbf{3}}{\mathbf{4}\ \ 3\ \ \mathbf{12}} \qquad \frac{5\ \ \mathbf{5}}{12\ \ \mathbf{12}}$$

.

Add the fractions, and reduce. Then add the whole numbers.

$$\begin{array}{r} 6\,\frac{\mathbf{3}}{\mathbf{12}} \\ +\ 2\,\frac{\mathbf{5}}{\mathbf{12}} \\ \hline [\,]\,\frac{\mathbf{8}}{\mathbf{12}} \end{array} \quad - \quad [\,]\,\frac{2}{3} \quad + \quad \begin{array}{r} \mathbf{6}\,\frac{3}{12} \\ +\ \mathbf{2}\,\frac{5}{12} \\ \hline \mathbf{8}\,\frac{2}{3} \end{array}$$

***Solution:***

$$\begin{array}{r} \mathbf{6}\,\frac{\mathbf{1}}{\mathbf{4}} \\ +\ \mathbf{2}\,\frac{\mathbf{5}}{\mathbf{12}} \\ \hline \mathbf{[8]}\,\frac{\mathbf{[2]}}{\mathbf{[3]}} \end{array}$$

## FAS34

## Find a common denominator then add. Reduce your answer to lowest terms.

***Sample Problem:***

$6\frac{1}{4} + 2\frac{5}{8} = [\,]\frac{[\,]}{[\,]}$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 12

$\frac{1}{4} \cdot \frac{3}{3} = \frac{3}{12} \qquad \frac{5}{12} \cdot \frac{5}{5} = \frac{5}{12}$ .

Add the fractions, and reduce. Then add the whole numbers.

$6\frac{3}{12} + 2\frac{5}{12} = [\,]\frac{8}{12} = [\,]\frac{2}{3}$

$6\frac{3}{12} + 2\frac{5}{12} = 8\frac{2}{3}$

***Solution:***

$6\frac{1}{4} + 2\frac{5}{8} = |8|\frac{|2|}{|3|}$

## FAS35

## Find a common denominator then subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} \frac{3}{4} \\ -\ \frac{1}{8} \\ \hline \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 8

$$\frac{3}{4} \times \frac{2}{2} = \frac{6}{8} \qquad \frac{1}{8} \times \frac{1}{1} = \frac{1}{8}$$

.

Subtract the fractions.

$$\begin{array}{r} \frac{6}{8} \\ -\ \frac{1}{8} \\ \hline \frac{5}{8} \end{array}$$

***Solution:***

$$\begin{array}{r} \frac{3}{4} \\ -\ \frac{1}{8} \\ \hline \frac{|5|}{|8|} \end{array}$$

## FAS36

## Find a common denominator then subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{3}{4} - \frac{1}{8} = \frac{[\,]}{[\,]}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 8

$$\frac{3}{4} \cdot \frac{2}{2} = \frac{6}{8} \qquad \frac{1}{8} \cdot \frac{1}{8}$$

.

Subtract the fractions.

$$\frac{6}{8} - \frac{1}{8} = \frac{5}{8}$$

***Solution:***

$$\frac{3}{4} \cdot \frac{1}{8} = \frac{[5]}{[8]}$$

## FAS37

## Find a common denominator then subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 10\ \frac{4}{7} \\ -\ 4\ \frac{5}{14} \\ \hline [\,]\ \frac{[\,]}{[\,]} \end{array}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 14

$$\frac{4}{7} \cdot \frac{2}{2} = \frac{8}{14} \qquad \frac{5}{14} \cdot \frac{5}{5} = \frac{5}{14}$$

.

Subtract the fractions. Then subtract the whole numbers.

$$\begin{array}{r} 10\ \frac{8}{14} \\ -\ 4\ \frac{5}{14} \\ \hline [\,]\ \frac{3}{14} \end{array} \qquad \begin{array}{r} 10\ \frac{8}{14} \\ -\ 4\ \frac{5}{14} \\ \hline 6\ \frac{3}{14} \end{array}$$

***Solution:***

$$\begin{array}{r} 10\ \frac{4}{7} \\ -\ 4\ \frac{5}{14} \\ \hline |6|\ \frac{|3|}{|14|} \end{array}$$

## FAS38

## Find a common denominator then subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$10\frac{4}{7} - 4\frac{5}{14} = [\,]\frac{[\,]}{[\,]}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 14

$$\frac{4}{7}\cdot\frac{2}{2} = \frac{8}{14} \qquad \frac{5}{14}\cdot\frac{5}{5} = \frac{5}{14}$$

.

Subtract the fractions. Then subtract the whole numbers.

$$10\frac{8}{14} - 4\frac{5}{14} = [\,]\frac{3}{14}$$

$$10\frac{8}{14} - 4\frac{5}{14} = 6\frac{3}{14}$$

***Solution:***

$$10\frac{4}{7} - 4\frac{5}{14} = |6|\frac{|3|}{|14|}$$

## FAS39

## Rename the first mixed number so you can subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$\begin{array}{r} 9\frac{1}{3} \\ -\ 4\frac{7}{9} \\ \hline \square\frac{\square}{\square} \end{array}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 9

$$\frac{1}{3}\cdot\frac{3}{3}=\frac{3}{9} \qquad \frac{7}{9}\cdot\frac{7}{9}$$

.

Rename the first whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction. Then add the fractions.

$$9\frac{3}{9} = 8+1+\frac{3}{9}$$

$$9\frac{3}{9} = 8+\frac{9}{9}+\frac{3}{9}$$

$$9\frac{3}{9} = 8+\frac{12}{9} = 8\frac{12}{9}$$

Subtract the fractions, then subtract the whole numbers.

$$\begin{array}{r} 8\frac{12}{9} \\ -\ 4\frac{7}{9} \\ \hline \square\frac{5}{9} \end{array} \qquad \begin{array}{r} 8\frac{12}{9} \\ -\ 4\frac{7}{9} \\ \hline 4\frac{5}{9} \end{array}$$

***Solution:***

$$\begin{array}{r} 9\frac{1}{3} \\ -\ 4\frac{7}{9} \\ \hline 4\frac{5}{9} \end{array}$$

## FAS40

## Rename the first mixed number so you can subtract. Reduce your answer to lowest terms.

***Sample Problem:***

$$9\frac{1}{3} - 4\frac{7}{9} = [\,]\frac{[\,]}{[\,]}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 9

$$\frac{1 \cdot 3}{3 \cdot 3} = \frac{3}{9} \qquad \frac{7}{9} = \frac{7}{9}$$

.

Rename the first whole number as 1 less, plus a fraction equal to 1. This fraction should have the same numerator and denominator as the other fraction. Then add the fractions.

$$9\frac{3}{9} = 8 + 1 + \frac{3}{9}$$

$$9\frac{3}{9} = 8 + \frac{9}{9} + \frac{3}{9}$$

$$9\frac{3}{9} = 8 + \frac{12}{9} = 8\frac{12}{9}$$

Subtract the fractions, then subtract the whole numbers.

$$8\frac{12}{9} - 4\frac{7}{9} = [\,]\frac{5}{9}$$

$$8\frac{12}{9} - 4\frac{7}{9} = 4\frac{5}{9}$$

***Solution:***

$$9\frac{1}{3} - 4\frac{7}{9} = |4|\frac{|5|}{|9|}$$

## FML02

## Find the missing denominator.

### *Sample Problem:*

$\frac{2}{[\,]} \cdot 10 = 4$

### *Hint:*

Multiply the whole number by the numerator. This number divided by the denominator equals the product.

$2 \cdot 10 = 20$

$20 \div [\,] = 4 \qquad 20 \div 5 = 4$

### *Solution:*

$\frac{2}{[5]} \cdot 10 = 4$

## FML03

## Multiply these fractions. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{2}{5} \cdot \frac{3}{4} = \frac{[\,]}{[\,]}$$

***Hint:***
Multiply the numerators. Then multiply the denominators and reduce.

$$\frac{2}{5} \cdot \frac{3}{4} = \frac{6}{[\,]} \qquad \frac{2}{5} \cdot \frac{3}{4} = \frac{6}{20} = \frac{3}{10}$$

***Solution:***

$$\frac{2}{5} \cdot \frac{3}{4} = \frac{|3|}{|10|}$$

# Decimals: Place Value

**DPV01** **Convert tenths from a fraction to a decimal. Numbers < 1.**
**DPV02** **Convert hundredths from a fraction to a decimal. Numbers < 1.**
**DPV03** **Write fraction in tenths or hundredths as a decimal < 1.**
**DPV04** **Convert a mixed number with tenths or hundredths to a decimal. Numbers between 1 and 10.**
**DPV05** **Convert tenths or hundredths from a decimal to a fraction < 1. Numbers < 1.**
**DPV06** **Convert tenths or hundredths > 1 from a decimal to a mixed number. Numbers between 1 and 10.**
**DPV07** **Convert tenths or hundredths from a decimal to a mixed number. Number < 1 or from 1 to 10. Reducing required.**
**DPV08** **Convert decimals from tenths to hundredths and vice versa. Numbers < 10.**
**DPV11** **Show .1 more or less than a decimal in tenths or hundredths. Numbers < 10.**
**DPV12** **Show the decimal that comes between two numbers. Tenths or hundredths. Numbers < 10.**
**DPV13** **Compare (< = >) two decimals with tenths. Numbers < 10. Same whole number.**
**DPV14** **Compare (< = >) two decimals, with hundredths. Numbers < 10. Same whole number.**
**DPV15** **Compare (< = >) decimals, one tenth and one hundredth. Numbers < 1. Tenths are equal.**
**DPV18** **Convert thousandths from a fraction to a decimal. Numbers < 1.**
**DPV19** **Convert thousandths from a decimal to a fraction. Numbers < 1.**
**DPV20** **Convert thousandths from a decimal to a fraction. Numbers < 1.**
**DPV21** **Convert a decimal from tenths or hundredths to thousandths. Numbers < 1.**
**DPV22** **Write decimals from basic fractions < 1. Round to nearest hundredth.**
**DPV23** **Write decimals from fractions with the denominator 8.**
**DPV24** **Write decimals from fractions with the denominator 5 or 20.**

## FML04

## Multiply these fractions. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{4}{7} \cdot \frac{3}{10} = \frac{[\,]}{[\,]}$$

***Hint:***
Multiply the numerators. Then multiply the denominators and reduce.

$$\frac{4}{7} \cdot \frac{3}{10} = \frac{12}{[\,]} \qquad \frac{4}{7} \cdot \frac{3}{10} = \frac{12}{70} = \frac{6}{35}$$

***Solution:***

$$\frac{4}{7} \cdot \frac{3}{10} = \frac{|6|}{|35|}$$

## FML05

## Cancel common factors then multiply.

***Sample Problem:***

$$\frac{5}{6} \cdot \frac{6}{7} = \frac{[\,]}{[\,]}$$

***Hint:***
When one numerator equals the other denominator, those two numbers cancel each other out.

$$\frac{5}{6} \cdot \frac{6}{7} = \frac{5}{\cancel{6}} \cdot \frac{\cancel{6}^{1}}{7} = \frac{5}{1} \cdot \frac{1}{7} = \frac{5}{7}$$

***Solution:***

$$\frac{5}{6} \cdot \frac{6}{7} = \frac{|5|}{|7|}$$

## FML06

## Cancel common factors then multiply.

***Sample Problem:***

$$\frac{\frac{2}{3}\cdot\frac{6}{8}}{[\,]}$$

***Hint:***
When a numerator and denominator have common factors, divide each by the same number to reduce.

$$\frac{\frac{2}{3}\cdot\frac{\overset{2}{\cancel{6}}}{8}}{\underset{1}{\cancel{3}}} = \frac{\frac{2}{1}\cdot\frac{2}{8}}{1}$$

Reduce again as needed, then multiply.

$$\frac{\frac{2}{1}\cdot\frac{\overset{1}{\cancel{2}}}{\underset{4}{\cancel{8}}}}{1} = \frac{\frac{1}{1}\cdot\frac{2}{4}}{1} = \frac{\frac{2}{4}}{1} = \frac{1}{2}$$

***Solution:***

$$\frac{\frac{2}{3}\cdot\frac{6}{8}}{[2]} = [1]$$

## FML07

## Multiply these fractions. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{1}{8} \cdot 2\frac{2}{3} = \frac{[\,]}{[\,]}$$

***Hint:***
Rename the mixed number as an improper fraction. Multiply the whole number by the denominator, then add the numerator. Place this number over the denominator.

$$2\frac{2}{3} \qquad 2\frac{2}{3}$$

$$2 \cdot 3 = 6 \qquad 6 + 2 = 8 \qquad \frac{8}{3}$$

Reduce and multiply.

$$\frac{1}{8} \cdot \frac{8}{3} = \frac{1}{8} \cdot \frac{\overset{1}{8}}{3} = \frac{1}{1} \cdot \frac{1}{3} = \frac{1}{3}$$

or

$$\frac{1}{8} \cdot \frac{8}{3} = \frac{8}{24} = \frac{1}{3}$$

***Solution:***

$$\frac{1}{8} \cdot 2\frac{2}{3} = \frac{|1|}{|3|}$$

## FML08

## Multiply these mixed numbers. Reduce your answer to lowest terms.

***Sample Problem:***

$3\frac{2}{3} \cdot 4\frac{1}{5} = \frac{[\,]}{[\,]}$

***Hint:***
Rename the mixed numbers as improper fractions. Multiply the whole number by the denominator, then add the numerator. Place this number over the denominator.

$3\frac{2}{3} \qquad 3\frac{2}{3} \qquad = \frac{11}{3}$

$3 \cdot 3 = 9 \qquad 9 + 2 = 11$

$4\frac{1}{5} \qquad 4\frac{1}{5} \qquad = \frac{21}{5}$

$4 \cdot 5 = 20 \qquad 20 + 1 = 21$

Reduce and multiply.

$$\frac{11}{3} \cdot \frac{21}{5} = \frac{11}{3} \cdot \frac{\overset{7}{21}}{5} = \frac{11}{1} \cdot \frac{7}{5} = \frac{77}{5}$$

Put the answer in the form of a mixed number by dividing the numerator by the denominator.

$$\begin{array}{r} 15 \text{ r } 2 \\ 5\overline{)77} \end{array} \qquad = 15\frac{2}{5}$$

***Solution:***

$3\frac{2}{3} \cdot 4\frac{1}{5} = 15\frac{|2|}{|5|}$

# Fractions: Division

**FDV01** **Give the reciprocal of a whole number or fraction. (Can be improper)**
**FDV02** **Give the reciprocal of a mixed number.**
**FDV03** **Divide two lowest terms fractions <1. No reducing. Quotient <1.**
**FDV04** **Divide two lowest terms fractions <1. Easily reduced.**
**FDV05** **Divide a whole number by a fraction. Reducing required.**
**FDV06** **Divide a fraction by a whole number. Reducing required.**
**FDV07** **Divide a mixed number by a fraction.**
**FDV08** **Divide a fraction by a mixed number. Reducing required.**
**FDV09** **Divide two mixed numbers. Reducing required.**

## FDV01

## Find the reciprocal of this fraction number.

### *Sample Problems:*

$\frac{3}{4}$ is $\frac{[\,]}{[\,]}$ or 8 is $\frac{[\,]}{[\,]}$

### *Hint:*

Turn a fraction upside down to get the reciprocal.

The reciprocal of $\frac{3}{4}$ is $\frac{4}{3}$

The reciprocal of a whole number is 1 over that number.

The reciprocal of 8 is $\frac{1}{8}$

### *Solution:s*

$\frac{3}{4}$ is $\frac{|4|}{|3|}$ or 8 is $\frac{|1|}{|8|}$

## FDV02

## Find the reciprocal of this mixed number.

***Sample Problem:***

$2\frac{5}{6}$ is $\frac{[\,]}{[\,]}$

***Hint:***
Rename the mixed number as an improper fraction. Multiply the whole number by the denominator, then add the numerator. Place this number over the denominator.

$2\frac{5}{6}$ $2\frac{5}{6}$

$2 \cdot 6 = 12$ $12 + 5 = 17$ $\frac{17}{6}$

Turn the improper fraction upside down to get the reciprocal.

The reciprocal of $\frac{17}{6}$ is $\frac{6}{17}$

***Solution:***

$2\frac{5}{6}$ is $\frac{[6]}{[17]}$

## FDV03

## Do this division. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{1}{5} \div \frac{3}{4} = \frac{[\,]}{[\,]}$$

***Hint:***
Multiply the first fraction by the reciprocal of the second fraction.

$$\frac{1}{5} \cdot \frac{3}{4} = \frac{1}{5} \cdot \frac{4}{3} = \frac{4}{15}$$

***Solution:***

$$\frac{1}{5} \cdot \frac{3}{4} = \frac{|4|}{|15|}$$

## FDV04

## Do this division. Simplify by canceling common factors. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{2}{9} \div \frac{2}{5} = \frac{[\,]}{[\,]}$$

***Hint:***
Multiply the first fraction by the reciprocal of the second fraction.

$$\frac{2}{9} \cdot \frac{2}{5} = \frac{2}{9} \cdot \frac{5}{2}$$

When one numerator equals the other denominator, those two numbers cancel each other out.

$$\frac{2}{9} \cdot \frac{5}{2} = \frac{\overset{1}{\cancel{2}}}{9} \cdot \frac{5}{\underset{1}{\cancel{2}}} = \frac{1}{9} \cdot \frac{5}{1} = \frac{5}{9}$$

***Solution:***

$$\frac{2}{9} \div \frac{2}{5} = \frac{[5]}{[9]}$$

## FDV05

## Do this division. Reduce your answer to lowest terms.

***Sample Problem:***

$5 \div \frac{3}{5} = \frac{[\,]}{[\,]}$

***Hint:***
Rename the whole number as a fraction with a denominator of 1. Multiply this fraction by the reciprocal of the second fraction.

$5 \div \frac{3}{5} = \frac{5}{1} \times \frac{5}{3} = \frac{25}{3}$

Put the answer in the form of a mixed number by dividing the numerator by the denominator.

$3\overline{)25} = 8 \text{ r } 1 = 8\frac{1}{3}$

***Solution:***

$5 \div \frac{3}{5} = [8]\frac{[1]}{[3]}$

## FDV06

## Do this division. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{2}{3} \div 4 = \frac{[\,]}{[\,]}$$

***Hint:***
Rename the whole number as a fraction with a denominator of 1. Multiply the first fraction by the reciprocal of the second fraction.

$$\frac{2}{3} \div \mathbf{4} = \frac{2}{3} \div \frac{\mathbf{4}}{\mathbf{1}} = \frac{2}{3} \times \frac{\mathbf{1}}{\mathbf{4}}$$

Reduce and multiply.

$$\frac{2}{3} \times \frac{1}{4} = \frac{\overset{1}{\cancel{2}}}{3} \times \frac{1}{\underset{2}{\cancel{4}}} = \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$$

or

$$\frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$$

***Solution:***

$$\frac{2}{3} \div 4 = \frac{[1]}{[6]}$$

## FDV07

## Do this division. Reduce your answer to lowest terms.

***Sample Problem:***

$$2\frac{2}{3} \div \frac{3}{5} = \frac{[\,]}{[\,]}$$

***Hint:***
Rename the mixed number as an improper fraction. Multiply the whole number by the denominator, then add the numerator. Place this number over the denominator.

$$2\frac{2}{3} \qquad 2\frac{2}{3}$$

$$2 \cdot 3 = 6 \qquad 6 + 2 = 8 \qquad \frac{8}{3}$$

Multiply this improper fraction by the reciprocal of the second fraction.

$$\frac{8}{3} \cdot \frac{3}{5} = \frac{8}{3} \cdot \frac{5}{3} = \frac{40}{9}$$

Put the answer in the form of a mixed number by dividing the numerator by the denominator.

$$9\overline{)40} \qquad \begin{array}{r} 4 \text{ r } 4 \\ \hline \end{array} \qquad = 4\frac{4}{9}$$

***Solution:***

$$2\frac{2}{3} \div \frac{3}{5} = \frac{[4]}{[9]}$$

## FDV08

## Do this division. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{3}{4} \div 4\frac{1}{2} = \frac{[\,]}{[\,]}$$

***Hint:***
Rename the mixed number as an improper fraction. Multiply the whole number by the denominator, then add the numerator. Place this number over the denominator.

$$4\frac{1}{2} \qquad 4\frac{\mathbf{1}}{2}$$

$$\mathbf{4 \cdot 2 = 8} \qquad 8 + \mathbf{1} = 9 \qquad \frac{\mathbf{9}}{\mathbf{2}}$$

Multiply the first fraction by the reciprocal of the second fraction.

$$\frac{3}{4} \div \frac{\mathbf{9}}{\mathbf{2}} = \frac{3}{4} \cdot \frac{\mathbf{2}}{\mathbf{9}}$$

Reduce and multiply.

$$\frac{3}{4} \cdot \frac{2}{9} = \frac{\overset{1}{\cancel{3}}}{4} \cdot \frac{2}{\underset{3}{\cancel{9}}} = \frac{1}{4} \cdot \frac{2}{3}$$

$$\frac{1}{4} \cdot \frac{2}{3} = \frac{1}{\underset{2}{\cancel{4}}} \cdot \frac{\overset{1}{\cancel{2}}}{3} = \frac{1}{2} \cdot \frac{1}{3} = \frac{\mathbf{1}}{\mathbf{6}}$$

or

$$\frac{3}{4} \cdot \frac{2}{9} = \frac{6}{36} = \frac{\mathbf{1}}{\mathbf{6}}$$

***Solution:***

$$\frac{3}{4} \div 4\frac{\mathbf{1}}{2} = \frac{|\mathbf{1}|}{|\mathbf{6}|}$$

## FDV09

## Divide these mixed numbers. Reduce your answer to lowest terms.

***Sample Problem:***

$$1\frac{3}{5} \div 3\frac{3}{5} = \frac{[\,]}{[\,]}$$

***Hint:***
Rename the mixed numbers as improper fractions. Multiply the whole number by the denominator, then add the numerator. Place this number over the denominator.

$$1\frac{3}{5} \qquad 1\frac{3}{5} \qquad = \frac{8}{5}$$

$1 \cdot 5 = 5 \qquad 5 + 3 = 8$

$$3\frac{3}{5} \qquad 3\frac{3}{5} \qquad = \frac{18}{5}$$

$3 \cdot 5 = 15 \qquad 15 + 3 = 18$

Multiply the first fraction by the reciprocal of the second fraction.

$$\frac{8}{5} \div \frac{18}{5} = \frac{8}{5} \times \frac{5}{18}$$

Reduce and multiply.

$$\frac{8}{5} \times \frac{5}{18} = \frac{8}{5} \times \frac{\overset{1}{5}}{18} = \frac{8}{1} \times \frac{1}{18}$$

$$\frac{8}{1} \times \frac{1}{18} = \frac{\overset{4}{8}}{1} \times \frac{1}{\underset{9}{18}} = \frac{4}{1} \times \frac{1}{9} = \frac{4}{9}$$

***Solution:***

$$1\frac{3}{5} \div 3\frac{3}{5} = \frac{|4|}{|9|}$$

## DPV01

## Change this fraction to a decimal.

***Sample Problem:***

$\frac{3}{10} \rightarrow [\,]$

***Hint:***
The numerator shows the number of tenths when the denominator equals 10. Tenths have one digit to the right of the decimal point.

$\frac{3}{10} = 3 \text{ tenths} = .3$

***Solution:***

$\frac{3}{10} \rightarrow |.3|$

## DPV02

## Change this fraction to a decimal.

***Sample Problem:***

$\frac{14}{100} = [\ ]$

***Hint:***
The numerator shows the number of hundredths when the denominator equals 100. Hundredths have two digits to the right of the decimal point.

$\frac{14}{100} =$ **14** hundredths = **.14**

***Solution:***

$\frac{14}{100} = |.14|$

## DPV03

## Change this fraction to a decimal.

### *Sample Problems:*

$\frac{3}{10} = [\,]$ or $\frac{53}{100} = [\,]$

### *Hint:*

The numerator shows the number of tenths when the denominator equals 10 and the number of hundredths when the denominator equals 100. Tenths have one digit to the right of the decimal point. Hundredths have two digits to the right of the decimal point.

$\frac{3}{10}$ = **3** tenths = **.3**

or

$\frac{53}{100}$ = **53** hundredths = **.53**

### *Solutions:*

$\frac{3}{10} = [.3]$ or $\frac{53}{100} = [.53]$

## DPV04

## Change this mixed number to a decimal.

***Sample Problem:***

$4\frac{9}{10}$ [ ]

***Hint:***
The whole number is placed to the left of the decimal point. The fraction shows tenths or hundredths, which are placed to the right of the decimal point. Tenths have one digit to the right of the decimal point. Hundredths have two digits to the right of the decimal point.

$4\frac{9}{10}$ = 4 and 9 tenths = 4.9

***Solution:***

$4\frac{9}{10}$ | 4.9 |

## DPV05

## Change this decimal to a fraction.

***Sample Problems:***

$.9 = \frac{[\,]}{[\,]}$ or $.61 = \frac{[\,]}{[\,]}$

***Hint:***
Change the tenths and hundredths to fractions. Tenths have one digit to the right of the decimal point. Change tenths to a fraction with a denominator of 10.

$.9 = 9 \text{ tenths} = \frac{9}{10}$

Hundredths have two digits to the right of the decimal point. Change hundredths to a fraction with a denominator of 100.

$.61 = 61 \text{ hundredths} = \frac{61}{100}$

***Solutions:***

$.9 = \frac{|9|}{|10|}$ or $.61 = \frac{|61|}{|100|}$

## DPV06

## Change this decimal to a mixed number.

***Sample Problems:***

$7.2 = [\,]\frac{[\,]}{[\,]}$ or $8.56 = [\,]\frac{[\,]}{[\,]}$

***Hint:***
The whole number, left of the decimal, stays the same. Change the tenths and hundredths to fractions. Tenths have one digit to the right of the decimal point. Change tenths to a fraction with a denominator of 10.

$7.2 = 7 \text{ and } 2 \text{ tenths} = 7\frac{2}{10}$

Hundredths have two digits to the right of the decimal point. Change hundredths to a fraction with a denominator of 100.

$8.56 = 8 \text{ and } 56 \text{ hundredths} = 8\frac{56}{100}$

***Solutions:***

$7.2 = 7\frac{2}{10}$ or $8.56 = 8\frac{56}{100}$

## DPV07

## Change this decimal to a mixed number.

***Sample Problems:***

$4.5 = [\,]\frac{[\,]}{[\,]}$ or $7.35 = [\,]\frac{[\,]}{[\,]}$

***Hint:***
The whole number, left of the decimal, stays the same. Change the tenths and hundredths to fractions. Tenths have one digit to the right of the decimal point. Change tenths to a fraction with a denominator of 10. Divide the numerator and denominator by the same number to reduce.

$4.5 = 4 \text{ and } 5 \text{ tenths} = 4\frac{5}{10}$

$\frac{5}{10} \div \frac{5}{5} = \frac{1}{2} \qquad = 4\frac{1}{2}$

Hundredths have two digits to the right of the decimal point. Change hundredths to a fraction with a denominator of 100. Divide the numerator and denominator by the same number to reduce.

$7.35 = 7 \text{ and } 35 \text{ hundredths} = 7\frac{35}{100}$

$\frac{35}{100} \div \frac{5}{5} = \frac{7}{20} \qquad = 7\frac{7}{20}$

***Solutions:***

$4.5 = 4\frac{1}{2}$ or $7.35 = 7\frac{7}{20}$

## DPV08

## If the number is given in tenths, change it to hundredths. If the number is given in hundredths, change it to tenths.

***Sample Problems:***

4.3 = [] or 7.80 = []

***Hint:***

Hundredths have two digits right of the decimal point. Tenths have one digit right of the decimal point. Add an extra zero to change tenths to hundredths.

4.3 = 4.30

Take off the extra zero to change hundredths to tenths.

7.80 = 7.8

***Solutions:***

**4.3 = |4.30| or 7.80 = |7.8|**

## DAS02

## Add these numbers.

### *Sample Problem:*

2.3 + .1 = []

### *Hint:*

Add 1 to the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

2.3 + .1 = 2 . 4

### *Solution:*

2.3 + .1 = |2.4|

## DPV09

## Fill in the missing number.

***Sample Problem:***

2.5, 2.6, 2.7, []

***Hint:***
The numbers are increasing by tenths. Add 1 tenth to the number that is just before the missing number.

2.7 + .1 = 2.8

***Solution:***

**2.5, 2.6, 2.7, |2.8|**

## DPV10

## Fill in the missing number.

### *Sample Problem:*

0.78, [], 0.80, 0.81

### *Hint:*

The numbers are increasing by hundredths. Add 1 hundredth to the number that is just before the missing number.

0.78 + .01 = 0.79

### *Solution:*

**0.78, [0.79], 0.80, 0.81**

## DPV11

## Fill in the missing number.

***Sample Problem:***

2.57, 2.67, []

***Hint:***
The numbers are increasing by tenths. Add 1 tenth to the number that is just before the missing number.

2.67 + .1 = 2.77

***Solution:***

**2.57, 2.67, |2.77|**

## DPV12

## Fill in the missing number.

### *Sample Problems:*

6.7, 6.8, [] or 3.4, [], 3.42

### *Hint:*

If the numbers are increasing by tenths. Add 1 tenth to the number that is just before the missing number.

6.8 + .1 = 6.9

If the numbers are increasing by hundredths. Add 1 hundredth to the number that is just before the missing number.

3.4 + .01 = 3.41

### *Solutions:*

**6.7, 6.8, [6.9] or 3.4, [3.41], 3.42**

## DPV13

## Use <,>, or = to compare these numbers.

***Sample Problem:***

8.6 [] 8.9

***Hint:***
When the whole numbers are equal, compare the tenths.

6 < 9

***Solution:***

**8.6 |<| 8.9**

## DPV14

## Use <,>, or = to compare these numbers.

### *Sample Problems:*

6.72 [] 6.41

### *Hint:*

When the whole numbers are equal, compare the hundredths.

72 > 41

### *Solution:*

**6.72 |>| 6.41**

## DPV15

## Use <,>, or = to compare these numbers.

### *Sample Problems:*

.49 [] .4

### *Hint:*

Think of the tenth as a decimal with zero in the hundredths place. Then compare the hundredths.

.49 = 49 hundredths

.4 = .40 = 40 hundredths

49 > 40

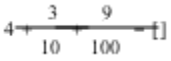
### *Solutions:*

**.49 |>| .4**

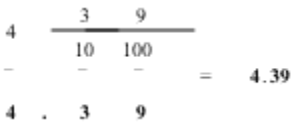
## DPV16

## Write the sum as a decimal number.

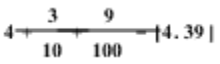
***Sample Problem:***



***Hint:***
The whole number is placed to the left of the decimal point. The fractions shows tenths and hundredths, which are placed to the right of the decimal point. Tenths have one digit to the right of the decimal point. Hundredths have two digits to the right of the decimal point.



***Solution:***



## DPV17

## Write the sum as a decimal number.

***Sample Problem:***

2 + .3 + .07 = []

***Hint:***
The whole number is placed to the left of the decimal point. The tenths and hundredths are placed to the right of the decimal point. Tenths have one digit to the right of the decimal point. Hundredths have two digits to the right of the decimal point.


***Solution:***

2 + .3 + .07 = |2.37|

## DAS01

## Add these numbers.

***Sample Problem:***

$$\begin{array}{r} 2.3 \\ +\ \ .1 \\ \hline [\,] \end{array}$$

***Hint:***
Add 1 to the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

$$\begin{array}{r} 2\ .\ 3 \\ +\ \ .\ 1 \\ \hline 2\ .4 \end{array}$$

***Solution:***

$$\begin{array}{r} 2.3 \\ +\ \ .1 \\ \hline [2.4] \end{array}$$

## DPV18

## Write this fraction as a decimal.

***Sample Problem:***

$\frac{13}{1000} =$ ▯

***Hint:***
The numerator shows the number of thousandths when the denominator equals 1000. Thousandths have three digits to the right of the decimal point. Use zeros, as needed to hold the decimal point.

$\frac{13}{1000} =$ **13** thousandths = **.013**

***Solution:***

$\frac{13}{1000} =$ **.013**

## DPV19

## Write this decimal as a fraction.

***Sample Problem:***

$$.873 = \frac{[\,]}{[\,]}$$

***Hint:***
Thousandths have three digits to the right of the decimal point. Change thousandths to a fraction with a denominator of 1000.

$$.873 = 873 \text{ thousandths} = \frac{873}{1000}$$

***Solution:***

$$.873 = \frac{|873\,|}{|1000\,|}$$

## DPV20

**Write this decimal as a mixed number. Reduce the fraction to lowest terms.**

***Sample Problem:***

$3.720 = [\,] \dfrac{[\,]}{[\,]}$

***Hint:***
The whole number, left of the decimal, stays the same. Change the thousandths to a fraction with a denominator of 1000. Divide the numerator and denominator by the same number to reduce.

$3.720 = 3 \text{ and } 720 \text{ thousandths} = 3\dfrac{720}{1000}$

$\dfrac{720}{1000} \div \dfrac{40}{40} = \dfrac{18}{25}$

$= 3\dfrac{18}{25}$

***Solution:***

$3.720 = [3] \dfrac{[18]}{[25]}$

# Decimals: Addition and Subtraction

**DAS01** **Add one tenth to a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS02** **Add one tenth to a whole number with tenths. No renaming. Numbers < 10. Horizontal.**
**DAS03** **Subtract one tenth from a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS04** **Subtract one tenth from a whole number with tenths. No renaming. Numbers < 10. Horizontal.**
**DAS05** **Add tenths to a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS06** **Add tenths to a whole number with tenths. No renaming. Numbers < 10. Horizontal.**
**DAS07** **Subtract tenths from a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS08** **Subtract tenths from a whole number with tenths. No renaming. Numbers < 10. Horizontal.**
**DAS09** **Add a whole number to a whole number with tenths. Numbers < 10. Answers < 20. Vertical.**
**DAS10** **Add a whole number to a whole number with tenths. Numbers < 10. Answers < 20. Horizontal.**
**DAS11** **Subtract a whole number with tenths from a whole number. Numbers < 10. Answers < 1. Vertical.**
**DAS12** **Subtract a whole number with tenths from a whole number. Numbers < 10. Answers < 1. Horizontal.**
**DAS13** **Add tenths to a whole number with hundredths. Number < 100. Horizontal.**
**DAS14** **Add two numbers with tenths and hundredths. No renaming. Numbers < 10. Vertical.**
**DAS15** **Add two numbers with tenths and hundredths. No renaming. Numbers < 10. Horizontal.**
**DAS16** **Subtract two numbers with tenths and hundredths. No renaming. Numbers < 10. Vertical.**
**DAS17** **Subtract two numbers with tenths and hundredths. Nor renaming. Numbers < 10. Horizontal.**
**DAS18** **Add two numbers with decimals up to hundredths, with some only tenths. No renaming. Numbers < 10. Vertical.**
**DAS19** **Subtract two numbers with decimals up to hundredths, with some only tenths. No renaming. Numbers < 10. Horizontal.**
**DAS20** **Add two numbers with decimals up to hundredths, with some only tenths. If renaming, one time only. Numbers < 10. Vertical.**
**DAS21** **Subtract two numbers with decimals up to hundredths, with some only tenths. If renaming, one time only. Numbers < 10. Vertical.**

## DPV21

## Rewrite the given number in thousandths.

### *Sample Problems:*

.62 = [ ] or .5 = [ ]

### *Hint:*

Thousandths have three digits right of the decimal point. Add extra zeros to change tenths and hundredths to thousandths.

.62 = .620

.5 = .500

### *Solutions:*

**.62 = |.620 | or .5 = |.500 |**

## DPV22

## Write the fraction as a decimal rounded to the nearest hundredth.

***Sample Problems:***

$\frac{1}{5} \rightarrow [\,]$ or $\frac{3}{4} \rightarrow [\,]$ or $\frac{2}{3} \rightarrow [\,]$

***Hint:***
When the denominator equals **2**, **5**, or **10**, rename the fraction as tenths. Multiply the numerator and denominator by the same number.

$\frac{1}{5} \cdot \frac{2}{2} = \frac{2}{10}$ = **2** tenths = **.2**

When the denominator equals **4**, think of how many fourths (or quarters). $\frac{1}{4}$ = .25. Multiply .25 by the number of fourths.

$\frac{1}{4} = .25$

$\frac{3}{4} = .25 \cdot 3 = .75$

When the denominator equals **3** or **6**, think of how many thirds. $\frac{1}{3}$ = .33. Multiply .33 by the number of thirds. Round answer to the nearest hundredth.

$\frac{1}{3} = .333$

$\frac{2}{3} = .333 \cdot 2 = .666 = .67$

***Solutions:***

$\frac{1}{5} \rightarrow [.2]$ or $\frac{3}{4} \rightarrow [.75]$ or $\frac{2}{3} \rightarrow [.67]$

## DPV23

## Write this fraction as a decimal.

***Sample Problem:***

$\frac{3}{8} = [\,]$

***Hint:***
A fraction can be read as a division problem. Divide the numerator by the denominator. Divide to the nearest thousandth by adding a decimal and three zeros to the dividend.

$\frac{3}{8} = \underline{8)\,3} = \underline{8)\,3.000} = \underline{8)\,3.000}$ [] [] [.375 ]

***Solution:***

$\frac{3}{8} = |.375|$

## DPV24

## Write this fraction as a decimal.

***Sample Problems:***

$\frac{3}{5} = [\,]$ or $\frac{7}{20} = [\,]$

***Hint:***
Rename the fractions as tenths or hundredths. When the denominator equals 5, multiply the numerator and denominator by 2 to make tenths.

$\frac{3}{5} \times \frac{2}{2} = \frac{6}{10} =$ **6** tenths = **.6**

When the denominator equals 20, multiply the numerator and denominator by 5 to make hundredths.

$\frac{7}{20} \times \frac{5}{5} = \frac{35}{100}$ **35** hundredths = **.35**

***Solutions:***

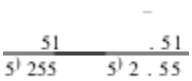
$\frac{3}{5} = |.6|$ **or** $\frac{7}{20} = |.35|$

## DDV02

## Do this division.

***Sample Problem:***


***Hint:***
When the divisor is a whole number, divide the numbers without the decimal. Then place the decimal in the answer directly above the decimal in the dividend.




***Solution:***

## DAS04

## Do this subtraction.

### *Sample Problem:*

9.8 - .1 = []

### *Hint:*

Subtract 1 from the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

9.8 - .1 = 9 . 7

### *Solution:*

9.8 - .1 = |9.7|

## DAS05

## Add these numbers.

***Sample Problem:***

$$\begin{array}{r} 6.4 \\ +\ .5 \\ \hline [\,] \end{array}$$

***Hint:***
Add the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

$$\begin{array}{r} 6\ .\ 4 \\ +\ \ .\ 5 \\ \hline 6\ .9 \end{array}$$

***Solution:***

$$\begin{array}{r} 6.4 \\ +\ \ .5 \\ \hline [6.9] \end{array}$$

## DAS06

## Add these numbers.

### *Sample Problem:*

6.4 + .5 = []

### *Hint:*

Add the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

6.4 + .5 = 6.9

### *Solution:*

6.4 + .5 = |6.9|

## DAS07

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} 8.7 \\ -\ \ .2 \\ \hline [\,] \end{array}$$

***Hint:***
Subtract the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

$$\begin{array}{r} 8\ .\ 7 \\ -\ \ \ .\ 2 \\ \hline 8\ .\ 5 \end{array}$$

***Solution:***

$$\begin{array}{r} 8.7 \\ -\ \ .2 \\ \hline [8.5] \end{array}$$

## DAS08

## Do this subtraction.

### *Sample Problem:*

8.7 - .2 = [ ]

### *Hint:*

Subtract the tenths. The tenths are directly to the right of the decimal point. The whole number stays the same.

8.7 - .2 = 8 . 5

### *Solution:*

8.7 - .2 = |8.5|

## DAS09

## Add these numbers.

***Sample Problem:***

$$\begin{array}{r} 6.3 \\ +\ \ 9 \\ \hline [\,] \end{array}$$

***Hint:***
Add the whole numbers. The tenth stays the same. Put the decimal point between the whole number and the tenth.

$$\begin{array}{r} 6\,.\,3 \\ +\ \ 9 \\ \hline 15\,.\,3 \end{array}$$

***Solution:***

$$\begin{array}{r} 6.3 \\ +\ \ 9 \\ \hline [15.3] \end{array}$$

## DAS10

## Add these numbers.

### *Sample Problem:*

6.3 + 9 = []

### *Hint:*

Add the whole numbers. The tenth stays the same. Put the decimal point between the whole number and the tenth.

**6**.3 + **9** = **15** . 3

### *Solution:*

**6.3 + 9 = |15.3|**

## DAS11

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} 9 \\ -\ 8.6 \\ \hline [\,] \end{array}$$

***Hint:***
The whole number equals a decimal number with 0 tenths. Subtract the numbers and place the decimal to the left of the tenths.

$$9 = 9.0 \qquad \begin{array}{r} 9.0 \\ -\ 8.6 \\ \hline .4 \end{array}$$

***Solution:***

$$\begin{array}{r} 9 \\ -\ 8.6 \\ \hline [.4] \end{array}$$

## DML01

## Use the arrow keys to show where the decimal point belongs.

***Sample Problem:***

$$\begin{array}{r} 0.37 \\ \cdot \quad 1.9 \\ \hline .0.7.0.3. \end{array}$$

***Hint:***
First, count the total number of digits to the right of the decimal point in both of the factors.

0 . 37 has **2** digits right of the decimal.

1 . 9 has **1** digit right of the decimal.

**2 + 1 = 3** A total of **3** digits right of the decimal.

Multiply the factors without the decimals. Then place the decimal point in the product so there are the same number of digits to the right of the decimal as there were in the two factors combined.

$$\begin{array}{r} {}^{6} \\ 037 \\ \cdot \quad 19 \\ \hline 333 \\ +\ 037\,0 \\ \hline 0703 \end{array}$$

0 . 703 has **3** digits right of the decimal .

***Solution:***

$$\begin{array}{r} \mathbf{0.37} \\ \cdot \quad \mathbf{1.9} \\ \hline \mathbf{.0.7.0.3.} \end{array}$$

## DAS12

## Do this subtraction.

***Sample Problem:***

9 - 8.6 = []

***Hint:***
The whole number equals a decimal number with 0 tenths. Subtract the numbers and place the decimal to the left of the tenths.

**9** = **9**.0 9.0 - 8.6 = .4

***Solution:***

**9 - 8.6 = |.4|**

## DAS13

## Add these numbers.

### *Sample Problem:*

64.02 + .8 = []

### *Hint:*

Add the tenths. The tenths are directly to the right of the decimal point. The other numbers stay the same.

64.02 + .8 = 64 . 82

### *Solution:*

64.02 + .8 = |64.82 |

## DAS14

## Add these numbers.

***Sample Problem:***

$$\begin{array}{r} 6.22 \\ +\ 1.65 \\ \hline [\,] \end{array}$$

***Hint:***
Add from right to left. First, add the hundredths. Then add the tenths and the whole numbers. Place the decimal between the whole number and the tenths.

$$\begin{array}{r} 6\ .2\ \mathbf{2} \\ +\ 1\ .6\ \mathbf{5} \\ \hline \_.\ \_7 \end{array} \qquad \begin{array}{r} \mathbf{6}\ .\ \mathbf{2}\ 2 \\ +\ \mathbf{1}\ .\ \mathbf{6}\ 5 \\ \hline \mathbf{7}\ .\ \mathbf{8}\ 7 \end{array}$$

***Solution:***

$$\begin{array}{r} \mathbf{6.22} \\ +\ \mathbf{1.65} \\ \hline \mathbf{|7.87|} \end{array}$$

## DAS15

## Add these numbers.

### *Sample Problem:*

6.22 + 1.65 = []

### *Hint:*

Add from right to left. First, add the hundredths. Then add the tenths and the whole numbers. Place the decimal between the whole number and the tenths.

**2** **5**
6.22 + 1.65 = _._7

**2** **5**
6.22 + 1.65 = _.87

**6** **1**
6.22 + 1.65 = 7.87

### *Solution:*

**6.22 + 1.65 = |7.87|**

## DAS16

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} 9.73 \\ -\ 4.61 \\ \hline [\ ] \end{array}$$

***Hint:***
Subtract from right to left. First, subtract the hundredths. Then subtract the tenths and the whole numbers. Place the decimal between the whole number and the tenths.

$$\begin{array}{r} 9\ .7\ \mathbf{3} \\ -\ 4\ .6\ \mathbf{1} \\ \hline \_.\ \_\mathbf{2} \end{array} \qquad \begin{array}{r} \mathbf{9}.\ \mathbf{7}\,3 \\ -\ \mathbf{4}.\ \mathbf{6}\,1 \\ \hline \mathbf{5}\ .\mathbf{1}\,2 \end{array}$$

***Solution:***

$$\begin{array}{r} \mathbf{9.73} \\ -\ \mathbf{4.61} \\ \hline [\mathbf{5.12}] \end{array}$$

# Decimals: Multiplication

**DML01** **Show where the decimal point goes in the product. Product of a whole number with tenths or hundredths. Numbers < 10. Answers up to thousandths. Use arrows to highlight correct decimal point.**
**DML02** **Multiply tenths by a single digit whole number. Vertical.**
**DML03** **Multiply tenths by a single digit whole number. Horizontal.**
**DML04** **Multiply hundredths by a single digit whole number. Tenths = 0. Vertical.**
**DML05** **Multiply hundredths by a single digit whole number. Tenths = 0. Horizontal.**
**DML06** **Multiply thousandths by a single digit whole number. Tenths and hundredths = 0. Vertical.**
**DML07** **Multiply thousandths by a single digit whole number. Tenths and hundredths = 0. Horizontal.**
**DML08** **Multiply tenths by tenths. Vertical.**
**DML09** **Multiply tenths by tenths. Horizontal.**
**DML10** **Multiply hundredths where tenths = 0 by tenths. Vertical.**
**DML11** **Multiply hundredths where tenths = 0 by tenths. Horizontal.**
**DML12** **Multiply a number with a decimal up to thousandths by 10, 100 or 1000. Numbers < 100. Horizontal.**
**DML13** **Multiply a number with a decimal up to thousandths by 0.1, 0.01 or 0.001.**
**DML14** **Multiply a number with a decimal up to thousandths by .1, .01, .001, 10, 100 or 1000.**
**DML15** **Multiply hundredths where hundredth place = 0 , 5 by a whole number < 5. Vertical.**
**DML16** **Multiply a decimal up to thousandths by a whole number < 5. Thousandths place = 0 , 5. Vertical.**

## DAS17

## Do this subtraction.

### *Sample Problem:*

9.73 - 4.61 = []

### *Hint:*

Subtract from right to left. First, subtract the hundredths. Then subtract the tenths and the whole numbers. Place the decimal between the whole number and the tenths.

9.73 - 4.61 = _._2

9.73 - 4.61 = _.12

9.73 - 4.61 = 5.12

### *Solution:*

**9.73 - 4.61 = |5.12|**

## DAS18

## Add these numbers.

### *Sample Problem:*

5.8 + 5.16 = []

### *Hint:*

If one number has only tenths, rename it as a decimal number with 0 hundredths. Add from right to left. First, add the hundredths. Then add the tenths and the whole numbers. Place the decimal between the whole number and the tenths.

5.8 = 5.80

5.80 + 5.19 = _._9

5.80 + 5.19 = _.99

5.8 + 5.19 = 10 . 99

### *Solution:*

**5.8 + 5.16 = |10.99|**

## DAS19

## Do this subtraction.

### *Sample Problem:*

6.74 - 2.1 = []

### *Hint:*

If one number has only tenths, rename it as a decimal number with 0 hundredths. Subtract from right to left. First, subtract the hundredths. Then subtract the tenths and the whole numbers. Place the decimal between the whole number and the tenths.

2.1 = 2.10

6.74 - 2.10 = _._4

6.74 - 2.10 = _.64

6.74 - 2.10 = 4.64

### *Solution:*

**6.74 - 2.1 = |4.64|**

## DAS20

## Add these numbers.

***Sample Problem:***

$$\begin{array}{r} 8.2 \\ +\ 1.93 \\ \hline [\quad] \end{array}$$

***Hint:***
If one number has only tenths, rename it as a decimal number with 0 hundredths.

$8.2 = 8.20$

Add from right to left. First, add the hundredths. Then add the tenths and the whole numbers. Place the decimal between the whole number and the tenths.

$$\begin{array}{r} {\scriptstyle 1}8\ .2\ 0 \\ +\ 1\ .9\ 3 \\ \hline \_.1\ 3 \end{array} \qquad \begin{array}{r} {\scriptstyle 1}8.\ 2\ 0 \\ +\ \ 1.\ 9\ 3 \\ \hline 1\ 0\ .1\ 3 \end{array}$$

***Solution:***

$$\begin{array}{r} 8.2 \\ +\ 1.93 \\ \hline [10.13] \end{array}$$

## DAS21

## Do this subtraction.

***Sample Problem:***

$$\begin{array}{r} 9.6 \\ -\ 3.34 \\ \hline [\,] \end{array}$$

***Hint:***
If one number has only tenths, rename it as a decimal number with 0 hundredths.

$9.6 = 9.60$

Subtract from right to left, renaming if necessary. First, subtract the hundredths. Then subtract the tenths and then the whole numbers. Place the decimal between the whole number and the tenths.

$$\begin{array}{r} {\scriptstyle 5\ 10} \\ 9\ .\ 6\ 0 \\ -\ 3\ .\ 3\ 4 \\ \hline .\ 2\ 6 \end{array} \qquad \begin{array}{r} {\scriptstyle 5\ 10} \\ 9\ .\ 6\ 0 \\ -\ 3\ .\ 3\ 4 \\ \hline 6\ .\ 2\ 6 \end{array}$$

***Solution:***

$$\begin{array}{r} 9.6 \\ -\ 3.34 \\ \hline |6.36| \end{array}$$

## DML03

## Multiply these numbers.

### *Sample Problem:*

0.5 · 9 = []

### *Hint:*

Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a tenth and the other is a whole number, the factors have a total of 1 digit right of the decimal point. The product will also have 1 digit right of the decimal point.

0.5 · 9 = 45 = 4.5

### *Solution:*

0.5 · 9 = |4.5|

## DML04

## Multiply these numbers.

***Sample Problem:***

$$\begin{array}{r} .08 \\ \cdot \quad 5 \\ \hline [\,] \end{array}$$

***Hint:***
Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a hundredth and the other is a whole number, the factors have a total of 2 digits right of the decimal point. The product will also have 2 digits right of the decimal point.

$$\begin{array}{r} .08 \\ \cdot \quad 5 \\ \hline 40 \end{array} = .40$$

***Solution:***

$$\begin{array}{r} .08 \\ \cdot \quad 5 \\ \hline [.40] \end{array}$$

## DML05

## Multiply these numbers.

***Sample Problem:***

.08 · 5 = []

***Hint:***

Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a hundredth and the other is a whole number, the factors have a total of 2 digits right of the decimal point. The product will also have 2 digits right of the decimal point.

.08 · 5 = 40 = .40

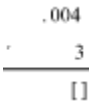
***Solution:***

.08 · 5 = |.40|

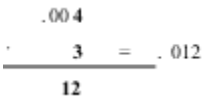
## DML06

## Multiply these numbers.

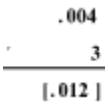
***Sample Problem:***



***Hint:***
Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a thousandth and the other is a whole number, the factors have a total of 3 digits right of the decimal point. The product will also have 3 digits right of the decimal point.



***Solution:***



## DML07

## Multiply these numbers.

### *Sample Problem:*

.004 · 3 = [ ]

### *Hint:*

Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a thousandth and the other is a whole number, the factors have a total of 3 digits right of the decimal point. The product will also have 3 digits right of the decimal point.

.004 · 3 = 12 = .012

### *Solution:*

.004 · 3 = |.012 |

## DML08

## Multiply these numbers.

***Sample Problem:***

$$\begin{array}{r} 0.7 \\ \times\ 0.6 \\ \hline [\,] \end{array}$$

***Hint:***
Multiply the factors without the zero. The zero is a place holder for the decimal. When both factors are tenths, the factors have a total of 2 digits right of the decimal point. The product will also have 2 digits right of the decimal point.

$$\begin{array}{r} 0.7 \\ \times\ 0.6 \\ \hline 42 \end{array} = .42$$

***Solution:***

$$\begin{array}{r} \mathbf{0.7} \\ \times\ \mathbf{0.6} \\ \hline \mathbf{[.42]} \end{array}$$

## DML09

## Multiply these numbers.

### *Sample Problem:*

$0.7 \cdot 0.6 = []$

### *Hint:*

Multiply the factors without the zero. The zero is a place holder for the decimal. When both factors are tenths, the factors have a total of 2 digits right of the decimal point. The product will also have 2 digits right of the decimal point.

$0.7 \cdot 0.6 = 42 \quad = \quad .42$

### *Solution:*

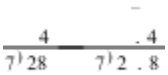
$0.7 \cdot 0.6 = |.42|$

## DDV01

## Do this division.

***Sample Problem:***

***Hint:***
When the divisor is a whole number, divide the numbers without the decimal. Then place the decimal in the answer directly above the decimal in the dividend.



***Solution:***

## DML10

## Multiply these numbers.

***Sample Problem:***

```
   .06
 ' 0.9
-----
   []
```

***Hint:***
Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a hundredth and the other is a tenth, the factors have a total of 3 digits right of the decimal point. The product will also have 3 digits right of the decimal point.

```
   .06
 ' 0.9   =  .054
-----
   54
```

***Solution:***

```
     .06
   ' 0.9
-------
   [.054 ]
```

## DML11

## Multiply these numbers.

### *Sample Problem:*

.06 · 0.9 = []

### *Hint:*

Multiply the factors without the zero. The zero is a place holder for the decimal. When 1 factor is a hundredth and the other is a tenth, the factors have a total of 3 digits right of the decimal point. The product will also have 3 digits right of the decimal point.

.06 · 0.9 = 54 = .054

### *Solution:*

.06 · 0.9 = |.054 |

## DML12

## Multiply these numbers.

### *Sample Problems:*

$10 \cdot 26.78 = []$ or $1000 \cdot 3.295 = []$

### *Hint:*

Multiplying by 10, 100 or 1000 doesn't change the numbers, it only changes the decimal place. Move the decimal point to the right the same number of digits as there are zeros in the factor. Add zeros, as needed, to hold the decimal place.

**10** has **1** zero .

$10 \cdot 26.78 = 26.7.8 = 267.8$

or

**1000** has **3** zeros

$1000 \cdot 3.295 = 3.295. = 3295$

### *Solutions:*

**$10 \cdot 26.78 = |267.8|$ or $1000 \cdot 3.295 = |3295|$**

# Decimals: Division

**DDV01** **Divide a number < 10 with tenths by a one digit whole number. No renaming.**
**DDV02** **Divide a number < 10 with hundredths by a one digit whole number. No renaming. Each digit divides evenly**
**DDV03** **Divide a number < 1 in hundredths by a one digit whole number.**
**DDV04** **Divide a number < 10 with tenths by tenths. Each digit goes evenly.**
**DDV05** **Divide tenths into a one digit whole number. No remainder.**
**DDV06** **Divide hundredths where tenth = 0 into hundredths. Divides evenly.**
**DDV07** **Divide hundredths where tenth = 0 into number < 10. Number divides in evenly.**
**DDV08** **Divide hundredth where tenth = 0 into one digit whole number. No remainder.**
**DDV09** **Divide hundredth where tenth = 0 into a whole number < 100. Number divides in evenly.**
**DDV10** **Divide a number < 1 with thousandths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV11** **Divide a number < 1 with hundredths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV12** **Divide a number < 100 with tenths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV13** **Divide a whole number < 10 by thousandths. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV14** **Divide a whole number < 100 by thousandth. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV15** **Divide a whole number < 1000 by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV16** **Divide a number by 10, 100, or 1000. Numbers < 100 with decimals up to hundredths.**
**DDV17** **Divide a number by .1, .01, .001. Number < 100 with decimals up to hundredths.**
**DDV18** **Divide a number by .1, .01, .001, 10, 100, or 1000. Numbers < 100 with decimals up to hundredths.**

## DML13

## Multiply these numbers.

### *Sample Problems:*

.01 · 88.23 = [] or .001 · 96 = []

### *Hint:*

Multiplying by .1, .01 or .001 doesn't change the numbers, it only changes the decimal place. Move the decimal point to the left the same number of digits as there are digits right of the decimal in the factor. Add zeros, as needed to hold the decimal place.

**.01** has **2** digits right of the decimal .

.01 · 88.23 = .8 8.23 = .8823

or

**.001** has **3** digits right of the decimal .

.001 · 96 = .0 9 6. = .096

### *Solutions:*

**.01 · 88.23 = |.8823 | or .001 · 96 = |.096 |**

## DML14

## Multiply these numbers.

### *Sample Problems:*

100 · .692 = [] or .1 · 53.1 = []

### *Hint:*

Multiplying by .1, .01, .001, 10, 100 or 1000 doesn't change the numbers, it only changes the decimal place. When the factor is less than 1, move the decimal point to the left the same number of digits as there are digits right of the decimal in the factor. Add zeros, as needed to hold the decimal place.

**.1** has **1** digit right of the decimal .

.1 · 53.1 = 5.3.1 = 5 . 31

If the factor is greater than 1, move the decimal point to the right the same number of digits as there are zeros in the factor. Add zeros, as needed, to hold the decimal place.

**100** has **2** zeros .

100 · .692 = .6 9.2 = 69 . 2

### *Solutions:*

**100 · .692 = |69.2| or .1 · 53.1 = |5.31|**

## DML15

## Multiply these numbers.

***Sample Problem:***

$$\begin{array}{r} .45 \\ \cdot \quad 3 \\ \hline [\,] \end{array}$$

***Hint:***
Multiply the factors without the decimals. When 1 factor is a hundredth and the other is a whole number, the factors have a total of 2 digits right of the decimal point. The product will also have 2 digits right of the decimal point.

$$\begin{array}{r} {\scriptstyle 1} \\ 45 \\ \cdot \quad 3 \\ \hline 135 \end{array}$$ 1 .35 has **2** digits right of the decimal .

***Solution:***

$$\begin{array}{r} .45 \\ \cdot \quad 3 \\ \hline [1.35] \end{array}$$

## DML16

## Multiply these numbers.

***Sample Problem:***

$$\begin{array}{r} .115 \\ \times \quad 4 \\ \hline [\quad] \end{array}$$

***Hint:***
Multiply the factors without the decimals. When 1 factor is a thousandth and the other is a whole number, the factors have a total of 3 digits right of the decimal point. The product will also have 3 digits right of the decimal point.

$$\begin{array}{r} {\scriptstyle 2} \\ 115 \\ \times \quad 4 \\ \hline 460 \end{array}$$ .460 has **3** digits right of the decimal .

***Solution:***

$$\begin{array}{r} .115 \\ \times \quad 4 \\ \hline [.460] \end{array}$$

## DDV03

## Do this division.

***Sample Problem:***

$$4\overline{)}.24$$

***Hint:***
When the divisor is a whole number, divide the numbers without the decimal. Then place the decimal in the answer directly above the decimal in the dividend. Use a zero to hold the decimal place.

$$4\overline{)}24 \qquad 4\overline{)}.24$$

***Solution:***

$$4\overline{)}.24$$

## DDV04

## Do this division.

***Sample Problem:***

$$\begin{array}{r} [\,] \\ .3\overline{)6.9} \end{array}$$

***Hint:***
When dividing by tenths, move the decimal point one digit to the right in both the divisor and the dividend. Then divide.

$$\begin{array}{r} [\,] \\ .3\overline{)6.9} \end{array} = \begin{array}{r} [\,] \\ .3.\overline{)6.9.} \end{array} = \begin{array}{r} 23 \\ 3\overline{)69} \end{array}$$

***Solution:***

$$\begin{array}{r} |23| \\ .3\overline{)6.9} \end{array}$$

## PCT02

## Change the percent to a decimal or the decimal to a percent.

### *Sample Problems:*

25 % = [] or .45 = []%

### *Hint:*

The percent equals the number of hundredths. Hundredths have two digits to the right of the decimal point.

**25 %** = **25** hundredths = **.25**

**.45** = **45** hundredths = **45 %**

### *Solutions:*

**25% = |. 25 | or .45 = |45 |%**

## DDV05

## Do this division.

***Sample Problem:***

$$\begin{array}{r} [\,] \\ .4\overline{)\,8} \end{array}$$

***Hint:***
When dividing by tenths, move the decimal point one digit to the right in both the divisor and the dividend. Add a zero to hold the decimal point. Then divide.

$$\begin{array}{r} [\,] \\ .4\overline{)\,8} \end{array} = \begin{array}{r} [\,] \\ .4.\overline{)\,8.0.} \end{array} = \begin{array}{r} 20 \\ 4\overline{)\,80} \end{array}$$

***Solution:***

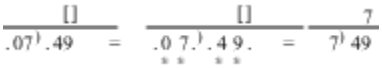
$$\begin{array}{r} \mathbf{[20]} \\ \mathbf{.4\overline{)\,8}} \end{array}$$

## DDV06

## Do this division.

***Sample Problem:***

***Hint:***
When dividing by hundredths, move the decimal point two digits to the right in both the divisor and the dividend. Then divide.



***Solution:***

## DDV07

## Do this division.

***Sample Problem:***

$$\begin{array}{r} [\,] \\ .05\overline{)4.5} \end{array}$$

***Hint:***
When dividing by hundredths, move the decimal point two digits to the right in both the divisor and the dividend. Add a zero to hold the decimal point. Then divide.

$$\begin{array}{r} [\,] \\ .05\overline{)4.5} \end{array} \quad = \quad \begin{array}{r} [\,] \\ .0\,5.\overline{)4.5\,0.} \\ \ast\ \ast \quad \ast\ \ast \end{array} \quad = \quad \begin{array}{r} 90 \\ 5\overline{)450} \end{array}$$

***Solution:***

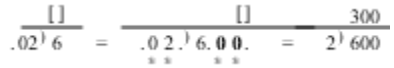
$$\begin{array}{r} [90\,] \\ .05\overline{)4.5} \end{array}$$

## DDV08

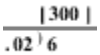
## Do this division.

***Sample Problem:***

***Hint:***
When dividing by hundredths, move the decimal point two digits to the right in both the divisor and the dividend. Add zeros to hold the decimal point. Then divide.



***Solution:***



## DDV09

## Do this division.

***Sample Problem:***

$$\begin{array}{r} [\,] \\ .05\overline{)\,45} \end{array}$$

***Hint:***
When dividing by hundredths, move the decimal point two digits to the right in both the divisor and the dividend. Add zeros to hold the decimal point. Then divide.

$$\begin{array}{r} [\,] \\ .05\overline{)\,45} \end{array} = \begin{array}{r} [\,] \\ .0\,5.\overline{)\,45.0\,0.} \end{array} = \begin{array}{r} 900 \\ 5\overline{)\,4500} \end{array}$$

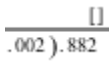
***Solution:***

$$\begin{array}{r} \mid 900 \mid \\ .05\overline{)\,45} \end{array}$$

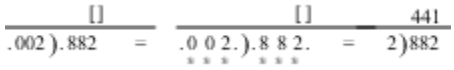
## DDV10

## Do this division.

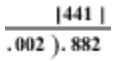
***Sample Problem:***




***Hint:***
When dividing by thousandths, move the decimal point three digits to the right in both the divisor and the dividend. Then divide.




***Solution:***



## DDV11

## Do this division.

***Sample Problem:***

$$\begin{array}{r} [\,] \\ .002\,)\overline{8.06} \end{array}$$

***Hint:***
When dividing by thousandths, move the decimal point three digits to the right in both the divisor and the dividend. Add zeros to hold the decimal point. Then divide.

$$\begin{array}{r} [\,] \\ .002\,)\overline{8.06} \end{array} = \begin{array}{r} [\,] \\ .002.\,)\overline{8.060.} \end{array} = \begin{array}{r} 4030 \\ 2\,)\overline{8060} \end{array}$$

***Solution:***

$$\begin{array}{r} |4030\,| \\ .002\,)\overline{8.06} \end{array}$$

## DDV12

## Do this division.

***Sample Problem:***

$$.003\overline{)63.9}$$

***Hint:***
When dividing by thousandths, move the decimal point three digits to the right in both the divisor and the dividend. Add zeros to hold the decimal point. Then divide.

$$.003\overline{)63.9} = .003.\overline{)63.900.} = 3\overline{)63900}$$

***Solution:***

$$.003\overline{)63.9}$$

## PCT01

## Write this ratio as a percent.

### *Sample Problem:*

3 to 100 = []%

### *Hint:*

The percent equals the number out of 100.

**3** to 100 = **3%**

### *Solution:*

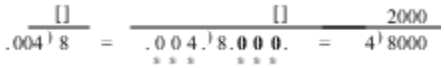
**3 to 100 = |3|%**

## DDV13

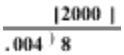
## Do this division.

***Sample Problem:***

***Hint:***
When dividing by thousandths, move the decimal point three digits to the right in both the divisor and the dividend. Add zeros to hold the decimal point. Then divide.



***Solution:***

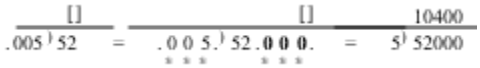


## DDV14

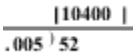
## Do this division.

***Sample Problem:***


***Hint:***
When dividing by thousandths, move the decimal point three digits to the right in both the divisor and the dividend. Add zeros to hold the decimal point. Then divide.



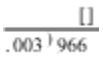

***Solution:***



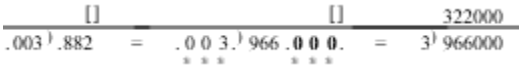
## DDV15

## Do this division.

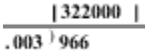
***Sample Problem:***




***Hint:***
When dividing by thousandths, move the decimal point three digits to the right in both the divisor and the dividend. Add zeros to hold the decimal point. Then divide.




***Solution:***



# Percents

**PCT01** **Convert a written expression to a percent. Numbers £ 100.**
**PCT02** **Convert a decimal to a percent and vice versa. Numbers .01 .. 1.00.**
**PCT03** **Convert a fraction with denominator 100 to a percent and vice versa. Numbers £ 100. Denominators = 100.**
**PCT04** **Write a whole number as a percent. Numbers 0..10.**
**PCT05** **Convert a fraction to a percent. Numbers in thousandths or denominator = 100 then numerator is between 101 and 999.**
**PCT06** **Compare fractions, decimals, and percents. Numbers are multiples of 5.**
**PCT07** **Show equivalent fractions, decimals and percents. Denominator = 100. Show all three, fill in one missing. Numbers to 100.**
**PCT08** **Reduce a fraction with denominator 100 to lowest form. X = 10, 20, 25, 33 1/3, 50, 66 2/3, 75.**
**PCT09** **Convert a common fraction to a percent. Round to the nearest percent.**
**PCT10** **Convert tenths to a percent. x = 0..10. n=10x.**
**PCT11** **Convert fifths to a percent. x = 0..5. n = 20x.**
**PCT12** **Convert percent into lowest term fraction. Variable x is a multiple of 5 or 20.**
**PCT13** **Find 10% of a whole number. W = multiples of 10: 10 .. 500.**
**PCT14** **Find 1% of a whole number. W = whole numbers: 1 .. 500.**
**PCT15** **Find the percent of a whole number. X = 10, 25, 50, 75, 100. n = whole number: 1 .. 20.**

## DDV16

## Do this division.

### *Sample Problems:*

34.5 , 10 = [] or 1.88 , 1000 = []

### *Hint:*

Dividing by 10, 100 or 1000 doesn't change the numbers, it only changes the decimal place. Move the decimal point to the left the same number of digits as there are zeros in the factor. Add zeros, as needed, to hold the decimal place.

**10** has **1** zero .

34.5 , 10 = 3.4.5 = 3 . 45

or

**1000** has **3** zeros

1.88 , 1000 = .**0 0** 1.88 = .00188

### *Solutions:*

**34.5 , 10 = |3.45| or 1.88 , 1000 = |.00188 |**

## DDV17

## Do this division.

### *Sample Problems:*

5.62 , .01 = [ ]  or  8.95 , .001 = [ ]

### *Hint:*

Dividing by .1, .01 or .001 doesn't change the numbers, it only changes the decimal place. Move the decimal point to the right the same number of digits as there are digits right of the decimal in the factor. Add zeros, as needed to hold the decimal place.

**.01** has **2** digits right of the decimal .

5.62 , .01 = 5.62. = 562 .

or

**.001** has **3** digits right of the decimal .

8.95 , .001 = 8.950. = 8950 .

### *Solutions:*

**5.62 , .01 = [562 ]  or  8.95 , .001 = [8950 ]**

## DDV18

## Do this division.

### *Sample Problems:*

9.04 , .1 = [] or 16.7 , 100 = []

### *Hint:*

Dividing by .1, .01, .001, 10, 100 or 1000 doesn't change the numbers, it only changes the decimal place. When the factor is less than 1, move the decimal point to the right the same number of digits as there are digits right of the decimal in the factor. Add zeros, as needed to hold the decimal place.

**.1** has **1** digit right of the decimal .

9.04 , .1 = 9.0.4 = 90 . 4

If the factor is greater than 1, move the decimal point to the left the same number of digits as there are zeros in the factor. Add zeros, as needed, to hold the decimal place.

**100** has **2** zeros .

16.7 , 100 = .16.7 = .167

### *Solutions:*

**9.04 , .1 = |90.4| or 16.7 , 100 = |.167 |**

## PCT03

## Change the fraction to a percent or the percent to a fraction.

***Sample Problems:***

$\frac{[\,]}{100} = [\,]\%$ or $\frac{65}{100} = [\,]\%$

***Hint:***
The percent equals the number of hundredths, so the percent equals the numerator of a fraction when the denominator is 100.

**17 %** = **17** hundredths $= \frac{17}{100}$

$\frac{65}{100}$ = **65** hundredths = **65 %**

***Solutions:***

$\frac{|17\,|}{100} = 17\%$ or $\frac{65}{100} = |65\,|\%$

## PCT04

## Write this whole number as a percent.

### *Sample Problems:*

1 = []%  or  6 = []%

### *Hint:*

Multiply a whole number by 100 to express it as a percent.

**1** · 100 = **1**00 = 100%

**6** · 100 = **6**00 = 600%

### *Solutions:*

**1 = |100 |%  or  6 = |600 |%**

## PCT05

## Change this fraction to a percent.

### *Sample Problems:*

$\frac{212}{100} = [\,]\%$ or $\frac{37}{1000} = [\,]\%$

### *Hint:*

The percent equals the number of hundredths, so the percent equals the numerator of a fration when the denominator equals 100.

$\frac{212}{100} = 212$ hundredths $= 212\,\%$

When the denominator equals 1000, convert the fration to hundredths by dividing the numerator and denominator by 10.

$\frac{37}{1000} \cdot \frac{10}{10} = \frac{3.7}{100}$

$\frac{3.7}{100} = 3.7$ hundredths $= 3.7\%$

### *Solutions:*

$\frac{212}{100} = [212\,]\%$ or $\frac{37}{1000} = [3.7\,]\%$

## PCT06

## Use <,>,or = to compare these numbers.

### *Sample Problems:*

.25 [] 30%  or  .20 [] $\frac{20}{100}$

### *Hint:*

The percent equals the number of hundredths.  Compare the number of hundredths.

.25 = **25** hundredths

30% = **30** hundredths  **25 < 30**

or

.20 = **20** hundredths

$\frac{20}{100}$ = **20** hundredths  **20 = 20**

### *Solutions:*

**.25 |<| 30%  or  .20 |=| $\frac{20}{100}$**

## PCT07

## Fill in the missing numbers.

***Sample Problem:***

$\frac{45}{100} = [\,]\% = .45$

***Hint:***
The percent equals the number of hundredths.

$\frac{45}{100} = .45 = 45 \text{ hundredths} = 45\%$

***Solution:***

$\frac{45}{100} = [45]\% = .45$

## PCT08

## Rewrite this fraction in its simplest form.

***Sample Problems:***

$\frac{75}{100}$ $\frac{[\,]}{[\,]}$ or $\frac{33\frac{1}{3}}{100}$ $\frac{[\,]}{[\,]}$

***Hint:***
Reduce the fraction to lowest terms by dividing the numerator and denominator by the same number. Use the largest number you can.

$\frac{75}{100} \div \frac{25}{25} = \frac{3}{4}$

When the denominator equals $33\frac{1}{3}$ or $66\frac{2}{3}$, divide the numerator and denominator by $33\frac{1}{3}$. The new denominator will equal 3. The numerator will equal 1 or 2.

$\frac{33\frac{1}{3}}{100} \div \frac{33\frac{1}{3}}{3} = \frac{1}{3}$

***Solutions:***

$\frac{75}{100} \div \frac{|3|}{|4|}$ or $\frac{33\frac{1}{3}}{100} \div \frac{|1|}{|3|}$

## PCT09

## Change this fraction to a percent. Round your answer to the nearest whole percent.

***Sample Problems:***

$\frac{1}{4}$ []% or $\frac{2}{3}$ []%

***Hint:***

The percent equals the number of hundredths, so the percent equals the numerator of a fration when the denominator equals 100. Convert the fration to hundredths by multiplying the numerator and denominator by the same number.

$\frac{1}{4} \times \frac{25}{25} = \frac{25}{100}$ **25** hundredths = **25** %

When the denominator equals 3, multiply the numerator and denominator by $33\frac{1}{3}$. Round to the nearest percent.

$\frac{2}{3} \times \frac{33\frac{1}{3}}{33\frac{1}{3}} = \frac{66\frac{2}{3}}{100}$ $66\frac{2}{3}$ hundredths = **67** %

***Solutions:***

$\frac{1}{4}$ **|25|%** or $\frac{2}{3}$ **|67|%**

## PCT10

## Change this fraction to a percent.

***Sample Problem:***

$\frac{3}{10} = [\,]\%$

***Hint:***
When the denominator equals 10, convert the fration to hundredths by multiplying the numerator and denominator by 10.

$\frac{3}{10} \cdot \frac{10}{10} = \frac{30}{100}$

$\frac{30}{100} = \mathbf{30}$ hundredths $= \mathbf{30}\,\%$

***Solution:***

$\frac{3}{10} = \mathbf{|30\,|\%}$

## PCT11

## Change this fraction to a percent.

***Sample Problem:***

$\frac{2}{5} \rightarrow [\,]\%$

***Hint:***
When the denominator equals 5, convert the fration to hundredths by multipying the numerator and denominator by 20.

$\frac{2}{5} \cdot \frac{20}{20} = \frac{40}{100}$

$\frac{40}{100} =$ **40** hundredths $=$ **40 %**

***Solution:***

$\frac{2}{5} \rightarrow$ **| 40 |%**

## PCT12

## Change this percent to a fraction reduced to lowest terms.

***Sample Problem:***

$$15\% = \frac{[\,]}{[\,]}$$

***Hint:***
Rename the percent as a fraction with a denominator of 100. Reduce this fraction to lowest terms by dividing the numerator and denominator by the same number (5 or 20).

$$15\% = \frac{15}{100} = \frac{15 \div 5}{100 \div 5} = \frac{3}{20}$$

***Solution:***

$$15\% = \frac{[3]}{[20]}$$

## PCT13

## Find 10% of the given number.

### *Sample Problem:*

10 % of 360 = []

### *Hint:*

10% of any number equals that number divided by 10..

360 ÷ 10 = **36**

### *Solution:*

**10% of 360 = |36|**

## PCT14

## Find 1% of the given number.

### *Sample Problem:*

1% of 495 = []

### *Hint:*

1% of any number equals that number divided by 100. Express answers in decimal form by moving the decimal two places to the left.

495 = **495.**

**495.** / 100 = **4.95.** = **4.95**

### *Solution:*

**1% of 495 = [4.95]**

## PCT15

## Multiply to find the given percent.

***Sample Problem:***

75% of 20 = []

***Hint:***

**100**% of any number equals **that number**.

**10**% of any number equals that number **times** $\frac{1}{10}$.

**25**% of any number equals that number **times** $\frac{1}{4}$.

**50**% of any number equals that number **times** $\frac{1}{2}$.

**75**% of any number equals that number **times** $\frac{3}{4}$.

$$75\% \text{ of } 20 = 20 \cdot \frac{3}{4} = 5 \cdot 3 = 15$$

***Solution:***

**75% of 20 = [15]**

# Review *Fractions: Division*

*Mixed practice adding, subtracting, multiplying and dividing fractions and mixed numbers.*

**FAS30** **Add two fractions < 1. One fraction is easily reduced. Sum < 1. Horizontal.**
**FAS32** **Add two fractions < 1. One fraction is easily reduced. Sum > 1. Horizontal.**
**FAS34** **Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Horizontal.**
**FAS38** **Subtract two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Horizontal.**
**FAS40** **Subtract two mixed numbers. One fraction is easily reduced. Renaming and reducing required. Horizontal.**
**FML06** **Multiply two lowest terms fractions < 1. Reducing required. Fractions can be easily simplified before multiplication.**
**FML08** **Multiply two mixed numbers. Reducing required.**
**FDV07** **Divide a mixed number by a fraction. Reducing required.**
**FDV08** **Divide a fraction by a mixed number. Reducing required.**
**FDV09** **Divide two mixed numbers. Reducing required.**

# Review *Fractions: Equivalents*

*Use both multiplication and division to make equivalent fractions.*

**FEQ02 Identify the multiplier in making an equivalent fraction < 1.**
**FEQ04 Identify the divisor in making an equivalent fraction < 1.**

# Review *Fractions: Equivalent*

*Rename whole numbers to improper fractions and mixed numbers.*

**FEQ06 Idendify whole number values of fractions.**
**FEQ07 Write whole number as a mixed number, or vice versa.**

# Review *Fractions: Lowest Terms*

*Use both multiplication and division to make equivalent fractions.*

**FEQ02 Identify the multiplier in making an equivalent fraction < 1.**
**FEQ04 Identify the divisor in making an equivalent fraction < 1.**

# Review *Fractions: Lowest Terms*

*Find common denominators for numbers that are relativelty prime, multiples of one another, or share a single factor.*

**FLT06** **Name a common denominator of two lowest terms fractions < 1. Denominators are relatively prime.**
**FLT07** **Name a common denominator of two lowest term fractions < 1. One denominator is a multiple of the other.**
**FLT08** **Name a common denominator of two lowest term fractions < 1. Denominators share one factor.**

# Review *Fractions: Comparing*

*Compare two fractions whose denominators may*

**FCM01** **Compare two fractions < 1 with common denominators.**
**FCM02** **Compare two fractions < 1 with differentdenominators.**

# Review *Fractions: Comparing*

*Compare fractions and mixed numbers -- renaming not required.*

**FCM01 Comapre two fractions < 1 with a common denominators.**
**FCM02 Compare two fractions < 1 with different denominators.**
**FCM03 Compare two proper mixed numbers with common denominator.**
**FCM04 Compare two proper mixed numbers with the same whole number.**

# Review *Fractions: Comparing*

*Compare fractions and mixed numbers -- renaming required.*

**FCM06** **Compare two fractions < 1.**
**FCM07** **Compare two proper mixed numbers with different denominators.**

# Review Fractions:Comparing

*Compare all kinds of fractions and mixed numbers.*

**FCM01** **Compare two fractions < 1 with common denominators.**
**FCM02** **Compare two fractions < 1 with different denominators.**
**FCM03** **Compare two proper mixed numbers with common denominators.**
**FCM04** **Compare two proper mixed numbers with the same whole number.**
**FCM06** **Compare two fractions < 1.**
**FCM07** **Compare two proper mixed numbers with different denominators.**

# Review *Fractions: Improper and Mixed Numbers*

*Rename improper fractions as mixed numbers and mixed numbers as improper fractions.*

**FMX03 Write an improper fraction as a whole or a mixed number.**
**FMX04 Write a proper mixed number as an improper fraction.**
**FMX05 Rename a mixed proper fraction to a mixed improper fraction.**

# Review *Fractions: Addition and Subtraction*

*Add fractions horizontally. Reducing may or may not be required.*

**FAS01** **Add two fractions < 1 with common denominator and sum < 1. Reducing not required. Horizontal.**
**FAS03** **Add two fractions < 1 with common denominator and sum < 1. Reducing required. Horizontal.**

# Fractions: Addition and Subtraction

**FAS01** Add two fractions < 1 with common denominators and sum < 1. Reducing not required. Horizontal.
**FAS02** Add two fractions < 1 with common denominators and sum < 1. Reducing not required. Vertical.
**FAS03** Add two fractions < 1 with common denominators and sum < 1. Reducing required. Horizontal.
**FAS04** Add two fractions < 1 with common denominators and sum < 1. Reducing required. Vertical.
**FAS05** Subtract two fractions < 1 with common denominators and sum < 1. Reducing not required. Horizontal.

**FAS06** Subtract two fractions < 1 with common denominators and sum < 1. Reducing not required. Vertical.
**FAS07** Subtract two fractions < 1 with common denominators and sum < 1. Reducing required. Horizontal.
**FAS08** Subtract two fractions < 1 with common denominators and sum < 1. Reducing required. Vertical.
**FAS09** Add to fration < 1 with common denominators and sum > 1. Reducing required. Horizontal.
**FAS10** Add to fration < 1 with common denominators and sum > 1. Reducing required. Vertical.
**FAS11** Add two mixed numbers with common denominators. Reducing required. Fraction sum < 1. Horizontal.
**FAS12** Add two mixed numbers with common denominators. Reducing required. Fraction sum < 1. Vertical.
**FAS13** Subtract two mixed numbers with common denominators. Reducing required. Nor renaming. Horizontal.
**FAS14** Subtract two mixed numbers with common denominators. Reducing required. Nor renaming. Vertical.
**FAS15** Subtract a whole number from a mixed number. Horizontal.
**FAS16** Subtract a whole number from a mixed number. Vertical.
**FAS17** Add a mixed number and a fraction < 1 where the answer is a whole number. Horizontal.
**FAS18** Add a mixed number and a fraction < 1 where the answer is a whole number. Vertical.
**FAS19** Add mixed numbers with common denominators. Renaming and reducing required. Horizontal.
**FAS20** Add mixed numbers with common denominators. Renaming and reducing required. Vertical.
**FAS21** Subtract a fraction < 1 from 1. Reducing required. Vertical.
**FAS22** Subtract a fraction < 1 from 1. Reducing required. Horizontal.
**FAS23** Subtract a fraction < 1 from a whole number. Reducing required. Vertical.
**FAS24** Subtract a fraction < 1 from a whole number. Reducing required. Horizontal.
**FAS25** Subtract a mixed number from a whole number. Lowest terms. Vertical.
**FAS26** Subtract a mixed number from a whole number. Lowest terms. Horizontal.
**FAS27** Subtract two mixed numbers with common denominators. Renaming and reducing required. Horizontal.
**FAS28** Subtract two mixed numbers with common denominators. Renaming and reducing required. Vertical.
**FAS29** Add two fractions < 1. One fraction is easily reduced. Sum < 1. Vertical.
**FAS30** Add two fractions < 1. One fraction is easily reduced. Sum < 1. Horizontal.
**FAS31** Add two fractions < 1. One fraction is easily reduced. Sum > 1. Vertical.
**FAS32** Add two fractions < 1. One fraction is easily reduced. Sum > 1. Horizontal.
**FAS33** Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Vertical.
**FAS34** Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Horizontal.
**FAS35** Subtract two fractions < 1 with one denominator a multiple of the other. No renaming. Reducing required. Vertical.
**FAS36** Subtract two fractions < 1 with one denominator a multiple of the other. No renaming. Reducing required. Horizontal.
**FAS37** Subtract two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Vertical.
**FAS38** Subtract two mixed numbers. One fraction is easily reduced. No renaming or reducing required.

| | | | |
|---|---|---|---|
| | **Horizontal.** | | |
| **FAS39** | **Subtract two mixed numbers. Vertical.** | **One fraction is easily reduced.** | **Renaming and reducing required.** |
| **FAS40** | **Subtract two mixed numbers. Horizontal.** | **One fraction is easily reduced.** | **Renaming and reducing required.** |

# Review *Fractions: Addition and Subtraction*

*Subtract fractions horizontally. Reducing may or may not be required.*

**FAS05** **Subtract two fractions < 1 with common denominators and sum < 1. Reducing not required. Horizontal.**

**FAS07** **Subtract two fractions < 1 with common denominators and sum < 1. Reducing required. Horizontal.**

# Review *Fractions: Addition and Subtraction*

*Add horizontally fractions that may or may not require renaming and reducing.*

**FAS01** **Add two fractions < 1 with a common denominator and sum < 1. Reducing not required. Horizontal.**
**FAS03** **Add two fractions < 1 with a common denominator and sum < 1. Reducing required. Horizontal.**
**FAS09** **Add two fractions < 1 with a common denominator and sum > 1. Reducing required. Horizontal.**

# Review *Fractions:Addition and Subtraction*

*Add and subtract mixed number with common denominators. Problems presented vertically. Reducing is required.*

**FAS12** **Add two mixed numbers with common denominators. Reducing required. Vertical.**
**FAS14** **Subtract two mixed numberd with common denominators. Reducing required. No renaming. Vertical.**

# Review *Fractions: Addition and Subtraction*

*Add and subtract whole or mixed numbers from mixed numbers.*

**FAS12** **Add two mixed numbers with common denominators. Fraction sum < 1. Reducing required. Vertical.**

**FAS14** **Subtract two mixed numbers with common denominators. Reducing required. No renaming. Vertical.**

**FAS16** **Subtract whole number from mixed number. Vertical.**

# Review *Fractions: Addition and Subtraction*

*Add and subtract mixed numbers or fractions. Reducing required. Some renaming required. Vertical formats.*

**FAS08** **Subtract two fractions < 1 with common denominators and sum < 1. Reducing required. Vertical.**
**FAS10** **Add two fractions < 1 with common denominator and sum > 1. Reducing required. Vertical.**
**FAS14** **Subtract two mixed numbers with common denominators. No renaming. Reducing required. Vertical.**
**FAS20** **Add mixed numbers with common denominators. Renaming and reducing required. Vertical.**

# Review *Fractions: Addition and Subtraction*

*Subtract mixed numbers from whole or mixed numbers. Reducing and renaming required. Vertical.*

**FAS25** **Subtract a mixed number from a whole number. Lowest terms. Vertical.**
**FAS28** **Subtract two mixed numbers with a common denominator.**

# Review *Decimals: Place Value*

*Write fractions and mixed numbers as decimals.*

**DPV03** **Write a fraction in tenths or hundredths as a decimal < 1.**
**DPV04** **Convert a mixed number with tenths or hundredths to a decimal. Numbers between 1 and 10.**

# Review *Fractions: Division*

*Mixed practice with multiplication and division of fractions and mixed numbers.*

**FML06** **Multiply two lowest terms fractions < 1. Reducing required. Fractions can be easily simplified before multiplication.**
**FML07** **Multiply a mixed number and a fraction < 1. Reducing required.**
**FML08** **Multiply two mixed numbers. Reducing required.**
**FDV03** **Divide two lowest terms fractions < 1. No reducing. Quotient < 1.**
**FDV04** **Divide two lowest terms fractions < 1. Easily reduced.**
**FDV07** **Divide a mixed number by a fraction. Reducing required.**
**FDV08** **Divide a fraction by a mixed number. Reducing required.**
**FDV09** **Divide two mixed numbers. Reducing required.**

Review *Fractions: Addition and Subtraction*

# Review *Fractions: Addition and Subtraction*

*Add fractions with different denominators. Sums either greater or less than 1. Vertical formats.*

**FAS29** **Add two fraction < 1. One fraction is easily reduced. Sum < 1. Vertical.**
**FAS31** **Add two fractions < 1. One fraction is easily reduced. Sum > 1. Vertical.**

# Review *Fractions: Addition and Subtraction*

*Add fraction or mixed numbers with different denominators. Reducing required. Vertical formats.*

**FAS29** **Add two fractions < 1. One fraction is easily reduced. Sum < 1. Vertical.**
**FAS31** **Add two fractions < 1. One fraction is easily reduced. Sum > 1. Vertical.**
**FAS33** **Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Vertical.**

# Review *Fractions: Addition and Subtraction*

*Subtract fractions and mixed numbers. Reducing required. Some renaming required. Vertical and horizontal formats.*

**FAS36** **Subtract two fractions < 1 with one denominator a multiple of the other. Reducing required. No renaming. Horizontal.**

**FAS37** **Subtract two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Vertical.**

**FAS38** **Subtract two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Horizontal.**

**FAS39** **Subtract two mixed numbers. One fraction is easily reduced. Renaming and reducing required. Vertical.**

**FAS40** **Subtract two mixed numbers. One fraction is easily reduced. Renaming and reducing required. Horizontal.**

# Review *Fractions: Division*

*Mixed practice dividing fractions and mixed numbers of all kinds. Reducing required.*

**FDV05 Divide a whole number by a fraction. Reducing required.**
**FDV06 Divide a fraction by a whole number. Reducing required.**
**FDV07 Divide a mixed number by a fraction. Reducing required.**
**FDV08 Divide a fraction by a mixed number. Reducing required.**
**FDV09 Divide two mixed numbers. Reducing required.**

# Review *Fractions: Division*

*Divide a whole number by a fraction or a fraction by a whole number. Reducing required.*

**FDV05 Divide a whole number by a fraction. Reducing required.**
**FDV06 Divide a fraction by a whole number. Reducing required.**

## FAS32

## Find a common denominator then add. Reduce your answer to lowest terms.

***Sample Problem:***

$$\frac{5}{8} + \frac{7}{16} = \frac{[\,]}{[\,]}$$

***Hint:***
Since the first denominator is a factor of the other, use the larger denominator as the common denominator. Multiply to rename the first fraction.

Common denominator = 16

$$\frac{5}{8} \cdot \frac{2}{2} = \frac{10}{16} \qquad \frac{7}{16} \cdot \frac{7}{7} = \frac{7}{16}$$

.

Add the fractions, then divide the numerator by the denominator to express the answer as a mixed number.

$$\frac{10}{16} + \frac{7}{16} = \frac{17}{16} \qquad 16\overline{)17} \text{ r } 1 \qquad = 1\frac{1}{16}$$

***Solution:***

$$\frac{5}{8} + \frac{7}{16} = \frac{|1|}{|16|}$$

# Review *Fractions: Division*

*Divide fractions. No reducing or easily reduced.*

**FDV03 Divide two lowest terms fractions < 1. No reducing. Quotient < 1.**
**FDV04 Divide two lowest terms fractions < 1. Easily reduced.**

# Review *Fractions: Addition and Subtraction*

*Add and subtract mixed numbers. Some renaming and reducing required. Different denominators. Vertical and horizontal formats.*

**FAS33** **Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Vertical.**

**FAS34** **Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Horiozontal.**

**FAS37** **Subtract two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Vertical.**

**FAS38** **Subtract two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Horizontal.**

**FAS39** **Subtract two mixed numbers. One fraction is easily reduced. Renaming and reducing required. Vertical.**

**FAS40** **Subtract two mixed numbers. One fraction is easily reduced. Renaming and reducing required. Horizontal.**

# Review *Fractions: Addition and Subtraction*

*Mixed practice with all kinds of addition and subtraction problems. Some renaming and reducing required. Denominators may or may not be the same. Formats are mixed.*

**FAS19** **Add mixed numbers with common denominators. Renaming and reducing required. Horizontal.**
**FAS20** **Add mixed numbers with common denominators. Renaming and reducing required. Vertical.**
**FAS25** **Subtract a mixed number from a whole number. Lowest terms. Vertical.**
**FAS26** **Subtract a mixed number from a whole number. Lowest terms. Horizontal.**
**FAS27** **Subtract two mixed numbers with common denominators. Renaming and reducing required. Horizontal.**
**FAS28** **Subtract two mixed numbers with common denominators. Renaming and reducing required. Vertical.**
**FAS31** **Add two fractions < 1. One fraction is easily reduced. Sum > 1. Vertical.**
**FAS32** **Add two fractions < 1. One fraction is easily reduced. Sum > 1. Horizontal.**
**FAS33** **Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Vertical.**
**FAS34** **Add two mixed numbers. One fraction is easily reduced. No renaming or reducing required. Horizontal.**
**FAS39** **Subtract two mixed numbers. One fraction is easily reduced. Renaming and reducing required. Vertical.**
**FAS40** **Subtract two mixed numbers. One fraction is easily reduced. Renaming and reducing required. Horizontal.**

# Review *Fractions: Multiplication*

*Multiply all kinds of fractions. Reducing required.*

**FML04 Multiply two lowest terms fractions < 1. Reducing required.**
**FML05 Multiply two lowest terms fractions < 1. Reducing required. One numerator and the other denominator are the same.**
**FML06 Multiply two lowest terms fractions < 1. Reducing required. Fractions can be easily simplified before multiplication.**

# Review *Fractions: Multiplication*

*Multiply a mixed number by another mixed number or a fraction. Reducing required.*

**FML07 Multiply a mixed number and a fraction < 1. Reducing required.**
**FML08 Multiply two mixed numbers. Reducing required.**

# Review *Fractions: Multiplication*

*Mixed practice multiplying fractions and mixed numbers. Reducing required.*

**FML04** **Multiply two lowest terms fractions < 1. Reducing required.**
**FML05** **Multiply two lowest terms fractions < 1. Reducing required. One numerator and the other denominator are the same.**
**FML06** **Multiply two lowest terms fractions < 1. Reducing required. Fractions can be easily simplified before multiplication.**
**FML07** **Multiply a mixed number and a fraction < 1. Reducing required.**
**FML08** **Multiply two mixed numbers. Reducing required.**

# Review *Decimals: Place Value*

*Convert fractions to decimals and decimals to fractions. Reducing required.*

**DPV03** **Write a fraction in tenths or hundredths as a decimal < 1.**
**DPV04** **Convert a mixed number with tenths or hundredths to a decimal. Numbers between 1 and 10.**
**DPV07** **Convert tenths or hundredths from a decimal to a mixed number. Reducing required. Numbers < 1 or from 1 to 10.**

# Review *Decimals: Place Value*

*Convert fractions with tenths and hundredths to decimals.*

**DPV03 Write a fraction in tenths or hundredths as a decimal < 1.**
**DPV04 Convert a mixed number with tenths or hundredths to a decimal. Numbers between 1 and 10.**

# Review *Decimals: Place Value*

*Write fractions with denominators 5, 8, and 20 as decimals.*

**DPV23 Write decimals from fractions with denominator 8.**
**DPV24 Write decimals from fractions with denominator 5 or 20.**

# Review *Decimals: Place Value*

*Write common fractions as decimals.*

**DPV22 Write decimals from basic fractions < 1. Round to the nearest hundredth.**

# Review *Decimals: Addition and Subtraction*

*Add and subtract tenths from numbers with tenths. No renaming. Vertical and horizontal formats.*

**DAS05** **Add tenths to a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS06** **Add tenths to a whole number with tenths. No renaming. Numbers < 10. Horizontal.**
**DAS07** **Subtract tenths from a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS08** **Subtract tenths from a whole number with tenths. No renaming. Numbers < 10. Horizontal.**

# Review *Decimals: Addition and Subtraction*

*Add and subtract whole numbers and decimals with tenths. Vertical and horizontal formats.*

**DAS09** **Add a whole number to a whole number with tenths. Numbers < 10, answers < 20. Vertical.**
**DAS10** **Add a whole number to a whole number with tenths. Numbers < 10, answers < 20. Horizontal.**
**DAS11** **Subtract a whole number with tenths from a whole number. Numbers < 10, answers < 1. Vertical.**
**DAS12** **Subtract a whole number with tenths from a whole number. Numbers < 10, answers < 1. Horizontal.**

# Review Decimals: Addition and Subtraction 12R2

*Add and subtract tenths or whole numbers from decimals with tenths or whole numbers. Vertical and horizontal formats.*

**DAS05** **Add tenths to a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS06** **Add tenths to a whole number with tenths. No renaming. Numbers < 10. Horizontal.**
**DAS07** **Subtract tenths from a whole number with tenths. No renaming. Numbers < 10. Vertical.**
**DAS08** **Subtract tenths from a whole number with tenths. No renaming. Numbers < 10. Horizontal.**
**DAS09** **Add a whole number to a whole number with tenths. Numbers < 10, answers < 20. Vertical.**
**DAS10** **Add a whole number to a whole number with tenths. Numbers < 10, answers < 20. Horizontal.**
**DAS11** **Subtract a whole number with tenths from a whole number. Numbers < 10, answers < 1. Vertical.**
**DAS12** **Subtract a whole number with tenths from a whole number. Numbers < 10, answers < 1. Horizontal.**

# Review *Decimals: Addition and Subtraction*

*Add and subtract decimals with tenths or hundredths. No renaming. Vertical and horizontal formats.*

**DAS13** **Add tenths to a whole number with hundredths. Numbers < 100. Horizontal.**
**DAS14** **Add two numbers with tenths and hundredths. No renaming. Numbers < 10. Vertical.**
**DAS15** **Add two numbers with tenths and hundredths. No renaming. Numbers < 10. Horinzontal.**
**DAS16** **Subtract two numbers with tenths and hundredths. No renaming. Numbers < 10. Vertical.**
**DAS17** **Subtract two numbers with tenths and hundredths. No renaming. Numbers < 10. Horizontal.**

# Review *Decimals: Addition and Subtraction*

*Add and subtract numbers with decimals up to hundredths. No renaming. Horizontal format*

**DAS18** **Add two numbers with decimals up to hundredths, some only tenths. Numbers < 10. No renaming. Horizontal.**

**DAS19** **Subtract two numbers with decimals up to hundredths, some only tenths. Numbers < 10. No renaming. Horizontal.**

# Review  Decimals: Addition and Subtraction

*Add and subtract numbers with decimals up to hundredths.  If renaming, one time only. Vertical format.*

**DAS20** **Add two numbers with decimals up to hundredths, some only tenths.  Numbers < 10.  If renaming, one time only.  Vertical.**

**DAS21** **Subtract two numbers with decimals up to hundredths, some only tenths.  Numbers < 10.  If renaming, one time only.  Vertical.**

# Review  Decimals: Addition and Subtraction

*Add and subtract numbers with decimals up to hundredths.  If renaming, one time only. Vertical and horizontal formats.*

**DAS18** **Add two numbers with decimals up to hundredths, some only tenths.  Numbers < 10.  No renaming. Horizontal.**

**DAS19** **Subtract two numbers with decimals up to hundredths, some only tenths.  Numbers < 10.  No renaming.  Horizontal.**

**DAS20** **Add two numbers with decimals up to hundredths, some only tenths.  Numbers < 10.  If renaming, one time only.  Vertical.**

**DAS21** **Subtract two numbers with decimals up to hundredths, some only tenths.  Numbers < 10.  If renaming, one time only.  Vertical.**

# Review *Decimals: Multiplication*

*Multiply tenths, hundredths, or thousandths by a single-digit whole number. Horizontal format.*

**DML03 Multiply tenths by a single digit whole number. Horizontal.**
**DML05 Multiply hundredths by a single digit whole number. Tenths = 0. Horizontal.**
**DML07 Multiply thousandths by a single digit whole number. Tenths and hundredths = 0. Horizontal.**

# Review *Decimals: Multiplication*

*Multiply tenths or hundredths by tenths. Vertical format.*

**DML08 Multiply tenths by tenths. Vertical.**
**DML10 Multiply hundredths where tenths = 0 by tenths. Vertical.**

# Review *Decimals: Multiplication*

*Multiply whole numbers, or numbers with tenths of thousandths by tenths. Vertical formats.*

**DML02 Multiply tenths by a single digit whole number. Vertical.**
**DML04 Multiply hundredths by a single digit whole number. Tenths = 0. Vertical.**
**DML06 Multiply thousandths by a single digit whole number. Tenths and hundredths = 0. Vertical.**
**DML08 Multiply tenths by tenths. Vertical.**
**DML10 Multiply hundredths where tenths = 0 by tenths. Vertical.**

# Review *Decimals: Multiplication*

*Multply a number with hundredths or thousandths by a whole number. Vertical format.*

**DML15 Multiply hundredths where hundredth place = 0 , 5 by a whole number < 5. Vertical.**
**DML16 Multiply a decimal up to thousandths by a whole number < 5. Thousandths place = 0 , 5. Vertical.**

# Review *Decimals: Mutiplication*

*Multiply numbers with up to thousandths by powers of 10 or whole numbers.*

**DML14 Multiply a number with a decimal up to thousandths by .1, .01, .001, 10, 100 or 1000.**
**DML15 Multiply hundredths where hundredth place = 0 , 5 by a whole number < 5. Vertical.**
**DML16 Multiply a decimal up to thousandths by a whole number < 5. Thousandths place = 0 , 5. Vertical.**

# Review *Decimals: Division*

*Divide numbers with up to hundredths by one-digit whole numbers.*

**DDV01** **Divide a number < 10 with tenths by a one digit whole number. No renaming.**
**DDV02** **Divide a number < 10 with hundredths by a one digit whole number. No renaming. Each digit divides evenly**
**DDV03** **Divide a number < 1 in hundredths by a one digit whole number.**

# Review *Decimals: Division*

*Divide whole numbers or tenths into numbers with up to hundredths. No remainders.*

**DDV02** **Divide a number < 10 with hundredths by a one digit whole number. No renaming. Each digit divides evenly**
**DDV03** **Divide a number < 1 in hundredths by a one digit whole number.**
**DDV04** **Divide a number < 10 with tenths by tenths. Each digit goes evenly.**
**DDV05** **Divide tenths into a one digit whole number. No remainder.**

# Review *Decimals: Division*

*Divide several types of numbers by hundredths. Numbers divide evenly.*

**DDV06 Divide hundredths where tenth = 0 into hundredths. Divides evenly.**
**DDV07 Divide hundredths where tenth = 0 into number < 10. Number divides in evenly.**
**DDV08 Divide hundredth where tenth = 0 into one digit whole number. No remainder.**
**DDV09 Divide hundredth where tenth = 0 into a whole number < 100. Number divides in evenly.**

# Review *Decimals: Division*

*Divide several types of numbers by whole numbers, tenths, or hundredths. Numbers divide evenly.*

**DDV02** **Divide a number < 10 with hundredths by a one digit whole number. No renaming. Each digit divides evenly**
**DDV03** **Divide a number < 1 in hundredths by a one digit whole number.**
**DDV04** **Divide a number < 10 with tenths by tenths. Each digit goes evenly.**
**DDV05** **Divide tenths into a one digit whole number. No remainder.**
**DDV06** **Divide hundredths where tenth = 0 into hundredths. Divides evenly.**
**DDV07** **Divide hundredths where tenth = 0 into number < 10. Number divides in evenly.**
**DDV08** **Divide hundredth where tenth = 0 into one digit whole number. No remainder.**
**DDV09** **Divide hundredth where tenth = 0 into a whole number < 100. Number divides in evenly.**

# Review *Decimals: Division*

*Divide numbers with thousandths, hundredths, tenths, or no decimals by thousandths. Divide evenly.*

**DDV10** **Divide a number < 1 with thousandths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV11** **Divide a number < 1 with hundredths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV12** **Divide a number < 100 with tenths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV13** **Divide a whole number < 10 by thousandths. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV14** **Divide a whole number < 100 by thousandth. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV15** **Divide a whole number < 1000 by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**

# Review *Decimals: Divison*

*Divide number with up to thousandths by whole numbers or decimal numbers up to thousandths. Numbers divide evenly.*

**DDV02** **Divide a number < 10 with hundredths by a one digit whole number. No renaming. Each digit divides evenly**
**DDV03** **Divide a number < 1 in hundredths by a one digit whole number.**
**DDV04** **Divide a number < 10 with tenths by tenths. Each digit goes evenly.**
**DDV05** **Divide tenths into a one digit whole number. No remainder.**
**DDV06** **Divide hundredths where tenth = 0 into hundredths. Divides evenly.**
**DDV07** **Divide hundredths where tenth = 0 into number < 10. Number divides in evenly.**
**DDV08** **Divide hundredth where tenth = 0 into one digit whole number. No remainder.**
**DDV09** **Divide hundredth where tenth = 0 into a whole number < 100. Number divides in evenly.**
**DDV10** **Divide a number < 1 with thousandths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV11** **Divide a number < 1 with hundredths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV12** **Divide a number < 100 with tenths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV13** **Divide a whole number < 10 by thousandths. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV14** **Divide a whole number < 100 by thousandth. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV15** **Divide a whole number < 1000 by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**

# Review *Decimals: Division*

*Multiply whole numbers, or numbers with tenths to thousandths by tenths. Vertical formats.*

**DML02 Multiply tenths by a single digit whole number. Vertical.**
**DML04 Multiply hundredths by a single digit whole number. Tenths = 0. Vertical.**
**DML06 Multiply thousandths by a single digit whole number. Tenths and hundredths = 0. Vertical.**
**DML08 Multiply tenths by tenths. Vertical.**
**DML10 Multiply hundredths where tenths = 0 by tenths. Vertical.**

# Review *Decimals: Division*

*Add and subtract numbers with decimals up to hundredths. If renaming, one time only. Vertical format.*

**DAS20** **Add two numbers with decimals up to hundredths, with some only tenths. If renaming, one time only. Numbers < 10. Vertical.**

**DAS21** **Subtract two numbers with decimals up to hundredths, with some only tenths. If renaming, one time only. Numbers < 10. Vertical.**

# Review *Decimals: Division*

*Multiply numbers with up to thousandths by powers of 10 or whole numbers.*

**DML14 Multiply a number with a decimal up to thousandths by .1, .01, .001, 10, 100 or 1000.**
**DML15 Multiply hundredths where hundredth place = 0 , 5 by a whole number < 5. Vertical.**
**DML16 Multiply a decimal up to thousandths by a whole number < 5. Thousandths place = 0 , 5. Vertical.**

# Review *Decimals: Division*

*Divide numbers with thousandths, hundredths, tenths, or no decimals by thousandths. Divide evenly.*

**DDV10** **Divide a number < 1 with thousandths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV11** **Divide a number < 1 with hundredths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV12** **Divide a number < 100 with tenths by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**
**DDV13** **Divide a whole number < 10 by thousandths. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV14** **Divide a whole number < 100 by thousandth. Hundredth and tenth = 0 in divisor. Divides evenly.**
**DDV15** **Divide a whole number < 1000 by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**

# Review *Decimals: Division*

*Mixed operations with decimals.*

**DAS20** **Add two numbers with decimals up to hundredths, with some only tenths. If renaming, one time only. Numbers < 10. Vertical.**

**DAS21** **Subtract two numbers with decimals up to hundredths, with some only tenths. If renaming, one time only. Numbers < 10. Vertical.**

**DML08** **Multiply tenths by tenths. Vertical.**

**DML10** **Multiply hundredths where tenths = 0 by tenths. Vertical.**

**DDV13** **Divide a whole number < 10 by thousandths. Hundredth and tenth = 0 in divisor. Divides evenly.**

**DDV14** **Divide a whole number < 100 by thousandth. Hundredth and tenth = 0 in divisor. Divides evenly.**

**DDV15** **Divide a whole number < 1000 by thousandths. Hundredth and tenth = 0 in divisor. Each digit divides evenly.**

# Review *Percents*

*Find various easy percents of whole numbers.*

**PCT13** **Find 10% of a whole number. W = multiples of 10: 10 .. 500.**
**PCT14** **Find 1% of a whole number. W = whole numbers: 1 .. 500.**
**PCT15** **Find the percent of a whole number. X = 10, 25, 50, 75, 100. n = whole number: 1 .. 20.**

# Review *Percents*

*Mixed conversions of decimals, fractions, percents, and whole numbers.*

**PCT01** **Convert a written expression to a percent. Numbers £ 100.**
**PCT02** **Convert a decimal to a percent and vice versa. Numbers .01 .. 1.00.**
**PCT03** **Convert a fraction with denominator 100 to a percent and vice versa. Numbers £ 100. Denominators = 100.**
**PCT04** **Write a whole number as a percent. Numbers 0..10.**
**PCT05** **Convert a fraction to a percent. Numbers in thousandths or denominator = 100 then numerator is between 101 and 999.**

# Review *Percents*

*Convert all kinds of fractions to decimals and vice versa.*

**PCT08** **Reduce a fraction with denominator 100 to lowest form. X = 10, 20, 25, 33 1/3, 50, 66 2/3, 75.**
**PCT09** **Convert a common fraction to a percent. Round to the nearest percent.**
**PCT10** **Convert tenths to a percent. x = 0..10. n=10x.**
**PCT11** **Convert fifths to a percent. x = 0..5. n = 20x.**
**PCT12** **Convert percent into lowest term fraction. Variable x is a multiple of 5 or 20.**