

## Notes for Basic Fraction Review

Fractions are part of a whole. We use them to write and work with amounts that are less than a whole number (one) but more than zero. The bottom number (denominator) tells how many parts the whole was divided into. The top number (numerator) tells how many of the parts to count.

\*Any fraction whose numerator and denominator are the same is equal to one.

EX:  $\frac{1}{1} = 1$        $\frac{10}{10} = 1$

### Simplifying Fractions:

A fraction should be simplified any time both the numerator and denominator can be divided by the same factor.

EX:  $\frac{6}{14} \div \frac{2}{2} = \boxed{\frac{3}{7}}$

$$\frac{4}{28} \div \frac{4}{4} = \boxed{\frac{1}{7}}$$

$$\frac{24}{27} \div \frac{3}{3} = \boxed{\frac{8}{9}}$$

$$\frac{6}{63} \div \frac{3}{3} = \boxed{\frac{2}{21}}$$

### Converting improper fractions to mixed numbers

1. Divide the numerator by the denominator
2. Write down the whole number answer
3. Then write down any remainder above the denominator

EX:

$$\frac{21}{4} = 4 \overline{) \begin{array}{r} 21 \\ 20 \\ \hline 1 \end{array}} = \boxed{5 \frac{1}{4}}$$

$$\frac{43}{5} = 5 \overline{) \begin{array}{r} 43 \\ 40 \\ \hline 3 \end{array}} = \boxed{8 \frac{3}{5}}$$

$$\frac{98}{4} = 4 \overline{) \begin{array}{r} 98 \\ 8 \\ \hline 18 \\ 16 \\ \hline 2 \end{array}} = \boxed{24 \frac{1}{2}}$$

$$\frac{105}{7} = \boxed{15}$$

## Inverting mixed numbers to improper fractions

1. Multiply the whole number part by the fraction's denominator.
2. Add that to the numerator
3. Then write the result on top of the denominator

EX:  $1\frac{3}{5} = \boxed{\frac{8}{5}}$        $2\frac{3}{8} = \boxed{\frac{19}{8}}$

$$4\frac{9}{11} = \boxed{\frac{53}{11}}$$

## Common Denominators:

Fractions must have the same denominator in order to add and subtract them. The Common denominator is found by identifying the Least Common Multiple of the denominators of the fractions. Then write each fraction as an equivalent fraction with the LCM as the new denominator (this is called finding the Least Common Denominator).

\*Don't forget to complete the equivalent by changing (through multiplication) the numerator too!

EX:  $\frac{4}{15} \cdot 2$  and  $\frac{3}{10} \cdot 3$        $\begin{array}{r} 5 \overline{) 15} \quad 10 \\ \underline{3} \quad \underline{2} \end{array} \rightarrow \frac{8}{30} \text{ and } \frac{9}{30}$   
 $5 \cdot 3 \cdot 2 = 30 \text{ (LCM)}$

$\frac{7}{12} \cdot 5$  and  $\frac{13}{30} \cdot 2$        $\begin{array}{r} 5 \overline{) 12} \quad 30 \\ \underline{2} \quad \underline{5} \end{array} \rightarrow \frac{35}{60} \text{ and } \frac{26}{60}$   
 $6 \cdot 2 \cdot 5 = 60 \text{ (LCM)}$