Math Rules

**Adding Fractions:** You can only add fractions with common denominators.

Example: \(\frac{1}{5} + \frac{2}{5} = \frac{3}{5}\) (the denominator will always stay the same)

**Adding Fractions:** If the denominators are not the same, you must find the common denominator by finding the least common multiple (LCM).

Example: \(\frac{2}{3} + \frac{1}{14} = (\text{the common denominator is } 14 \text{ so in this case } \frac{3}{7} \text{ must be multiplied by } \frac{2}{2} \text{ to have a common denominator}) \frac{6}{14} + \frac{1}{14} = \frac{7}{14}\)

Then, reduce the fraction: \(\frac{7}{14} = \frac{1}{2}\)

**Subtracting Fractions:** You can only subtract fractions with common denominators.

Example: \(\frac{8}{9} - \frac{4}{9} = \frac{4}{9}\) (the denominator will always stay the same)

**Subtracting Fractions:** If the denominators are not the same, you must find the common denominator by finding the least common multiple (LCM).

Example: \(\frac{2}{3} - \frac{1}{4} = (\text{the least common multiple is } 12 \text{ so that will be the common denominator in this case. You will have to multiply } \frac{2}{3} \times \frac{4}{4} \text{ and } \frac{1}{4} \times \frac{3}{3})\)

The equation is now: \(\frac{8}{12} - \frac{3}{12} = \frac{5}{12}\)

**Multiplying Fractions:** You can multiply both the numerators and denominators, whether they are common or not.

Example: \(\frac{3}{5} \times \frac{1}{4} = \frac{3}{20}\)

**Multiplying Fractions:** If you can, you must reduce.

Example: \(\frac{3}{10} \times \frac{4}{5} = \frac{12}{50} = \frac{6}{25}\)

**Multiplying Fractions:** Always remember to cross multiply, if it is possible and then reduce.

Example: \(\frac{5}{7} \times \frac{28}{30} = \frac{5}{2} \times \frac{28}{20} = \frac{1}{1} \times \frac{4}{6} = \frac{2}{3}\)
Dividing with fractions: 1st Step—When dividing fractions, always flip the second fraction and then multiply.

Example: \( \frac{4}{6} \div \frac{2}{3} = \frac{4}{6} \times \frac{3}{2} \)

2nd Step—Cross Multiply (see if there are common multiples).

Example: \( \frac{4}{6} \times \frac{3}{2} = \)

3rd Step—Then Multiply.

Example: \( \frac{2}{2} \times \frac{1}{1} = \frac{2}{2} or 1 \)