

Fraction Review

Addition and Subtraction:

1. Get a common denominator.
2. Keep the common denominator.
3. Combine the numerators. Watch your signs.
4. Reduce if possible.

$$\begin{aligned}\text{Example: } & -\frac{1}{4} + \left(-\frac{3}{8}\right) \\ & = -\frac{2}{8} + \left(-\frac{3}{8}\right) \\ & = -\frac{5}{8}\end{aligned}$$

1. The least common denominator is 8.
2. Keep the 8 as the denominator.
3. Combine the numerators. Notice we have like signs.
4. The fraction does not reduce.

Multiplication:

1. Simplify on the diagonals by dividing out common factors. (Cancel.)
2. Multiply numerators.
3. Multiply denominators.
4. Watch your signs.

$$\begin{aligned}\text{Example: } & -\frac{2}{3} \cdot \frac{3}{5} \\ & -\frac{2}{3} \cdot \frac{3}{5} \\ & = -\frac{2}{5}\end{aligned}$$

1. Simplify on the diagonals.
2. Multiply numerators and denominators.
3. You only have one negative sign, so the answer is negative.

Division:

1. Change the problem to multiplication. Invert the divisor. (Remember the divisor is the number after the division symbol.)
2. Follow the multiplication rules.

$$\begin{aligned}\text{Example: } & \frac{3}{4} \div \frac{2}{5} \\ & \frac{3}{4} \cdot \frac{5}{2} \\ & = \frac{15}{8}\end{aligned}$$

1. Change to multiplication. Invert the divisor.
2. Follow multiplication rules. You are not allowed to simplify (cancel) in the division stage.
3. There are no common factors. Leave as an improper fraction.

