

Basic Operations with Fractions

1. Adding and subtracting fractions:

- Get a common denominator
- Add or subtract the numerators
- Keep the denominator the same

$$\begin{aligned}\text{Ex 1a: } & \frac{2}{3} + \frac{1}{4} \\ & = \frac{8}{12} + \frac{3}{12} \\ & = \frac{11}{12}\end{aligned}$$

$$\begin{aligned}\text{Ex 1b: } & \frac{7}{8} - \frac{1}{2} \\ & = \frac{7}{8} - \frac{4}{8} \\ & = \frac{3}{8}\end{aligned}$$

2. Multiplying fractions:

- Multiply across, then reduce
- OR
- Reduce early, then multiply across

$$\begin{aligned}\text{Ex 2a: } & \left(\frac{3}{8}\right)\left(\frac{2}{3}\right) \\ & = \frac{6}{24} \\ & = \frac{1}{4}\end{aligned}$$

$$\begin{aligned}\text{Ex 2b: } & \left(\frac{3}{5}\right)\left(\frac{1}{6}\right) \\ & \overset{1}{\left(\frac{\cancel{3}}{5}\right)}\left(\frac{1}{\cancel{6}_2}\right) \\ & = \frac{1}{10}\end{aligned}$$

3. Dividing fractions:

- Rewrite as multiplication problem
- **K** eep the first fraction
- **F** lip the second fraction (reciprocal)
- **C** hange divide to multiply

$$\begin{aligned}\text{Ex 3: } & \frac{9}{16} \div \frac{3}{4} \\ & = \frac{9}{16} \left(\frac{4}{3}\right) \\ & = \frac{36}{48} = \frac{3}{4}\end{aligned}$$