

FRACTION RULES

$$\frac{A}{B} \text{numerator}$$
$$\frac{A}{B} \text{denominator}$$

$$\frac{A}{B} \quad A < B \quad \text{proper fraction}$$
$$\frac{A}{B} \quad A \geq B \quad \text{improper fraction}$$

addition- same denominators

$$\frac{A}{B} + \frac{C}{B} = \frac{A+C}{B}$$

subtraction- same denominators

$$\frac{A}{B} - \frac{C}{B} = \frac{A-C}{B}$$

addition- different denominators

$$\frac{A}{B} + \frac{C}{D} = \frac{AD}{BD} + \frac{BC}{BD} = \frac{AD+BC}{BD}$$

subtraction- different denominators

$$\frac{A}{B} - \frac{C}{D} = \frac{AD}{BD} - \frac{BC}{BD} = \frac{AD-BC}{BD}$$

multiplication

$$\frac{A}{B} \times \frac{C}{D} = \frac{AC}{BD}$$

division

$$\frac{A}{B} \div \frac{C}{D} = \frac{A}{B} \times \frac{D}{C} = \frac{AD}{BC}$$

To change an improper fraction to a mixed number, divide the numerator by the denominator. The answer becomes the whole number. Any remainder becomes the numerator, and the denominator stays the same.

$$\frac{5}{4} = 1 \frac{1}{4} \xrightarrow{\text{R}} \text{mixed number}$$

To change a mixed number to an improper fraction, multiply the whole number by the denominator and add the numerator. This is the new numerator, and the denominator stays the same.

$$2 \frac{3}{4} \quad 2 \times 4 = 8 + 3 = 11 \quad 2 \frac{3}{4} = \frac{11}{4}$$