

Lesson 4-2 Notes
Adding and Subtracting Fractions

Review: Find each missing number.

$$\frac{8}{16} = \frac{4}{8}$$

$$\frac{8}{10} = \frac{4}{5}$$

$$\frac{1}{5} = \frac{5}{25}$$

$$\frac{1}{6} = \frac{4}{24}$$

How do we add or subtract fractions with COMMON denominators?

When fractions have common denominators, we can add or subtract the numerators as they are and place the answer over the denominator.

Example:

Find $\frac{2}{9} + \frac{4}{9}$.

Estimate $\frac{2}{9} + \frac{4}{9} \approx 0 + \frac{1}{2}$, or $\frac{1}{2}$

$$\frac{2}{9} + \frac{4}{9} = \frac{2+4}{9} \quad \leftarrow \text{Keep the denominator the same.}$$

$$= \frac{6}{9} \quad \leftarrow \text{Add the numerators.}$$

$$= \frac{2}{3} \quad \leftarrow \text{Simplify. The answer is close to the estimate.}$$

You Try!

$$\frac{1}{8} + \frac{3}{8} = \frac{4}{8} = \frac{2}{4} = \boxed{\frac{1}{2}}$$

$$\frac{11}{15} + \left(-\frac{5}{15}\right) = \frac{11}{15} - \frac{5}{15} = \frac{6}{15} = \frac{2}{5}$$

$$\frac{9}{x} - \frac{7}{x} = \boxed{\frac{2}{x}}$$

$$\frac{1}{5} + \frac{4}{5} = \frac{5}{5} = \boxed{1}$$

How do we add or subtract fractions with UNLIKE denominators?

$$\frac{2}{3} + \frac{1}{5} =$$

Step 1: Find a common denominator.

$$\begin{array}{l} 3: 3 \quad 6 \quad 9 \quad 12 \quad (15) \\ 5: 5 \quad 10 \quad (15) \end{array}$$

Step 2: Rewrite each fraction using the common denominator.

$$\frac{2}{3} \overset{\times 5}{=} \frac{10}{15} \qquad \frac{1}{5} \overset{\times 3}{=} \frac{3}{15}$$

Step 3: Add or Subtract the "new" fractions.

$$\frac{10}{15} + \frac{3}{15} = \frac{13}{15}$$

Step 4: Simplify.

$$\boxed{\frac{13}{15}}$$

You Try!

$$\frac{3}{2} + \frac{1}{4}$$

$$\frac{6}{4} + \frac{1}{4} = \frac{7}{4} = \boxed{1\frac{3}{4}}$$

$$\frac{7}{10} + \frac{1}{6}$$

$$\frac{42}{60} + \frac{10}{60} = \frac{52}{60} = \frac{26}{30} = \boxed{\frac{13}{15}}$$

$$\frac{5}{24} - \frac{1}{8}$$

$$\frac{5}{24} - \frac{3}{24} = \frac{2}{24} = \boxed{\frac{1}{12}}$$

$$\frac{5}{6} - \frac{1}{2}$$

$$\frac{5}{6} - \frac{3}{6} = \frac{2}{6} = \boxed{\frac{1}{3}}$$

$$\frac{2}{5} + x = \frac{7}{5}$$

$$\frac{2}{5} + x = \frac{7}{5} - \frac{2}{5}$$

$$x = \frac{5}{5} = \boxed{1}$$

$$x - \frac{1}{5} = \frac{1}{10} + \frac{4}{5}$$

$$+ \frac{1}{5}$$

$$\frac{1}{10} + \frac{8}{10} = \boxed{\frac{9}{10}}$$