

## Adding and Subtracting Unlike Fractions

To add or subtract fractions or mixed numbers with unlike denominators, rename the fractions with a common denominator. Then add or subtract.

**Examples 1** Solve  $a = -\frac{5}{8} + \left(-\frac{3}{4}\right)$ . The least common denominator of 8 and 4 is 8.

$$a = -\frac{5}{8} + \left(-\frac{6}{8}\right) \quad \text{Rename } -\frac{3}{4} \text{ as } -\frac{6}{8}.$$

$$a = -\frac{11}{8} \quad \text{Add.}$$

$$a = -1\frac{3}{8} \quad \text{Rename the improper fraction as a mixed number.}$$

**2** Solve  $c = -2\frac{3}{5} - 1\frac{1}{2}$ . The least common denominator of 5 and 2 is 10.

$$c = -2\frac{6}{10} - 1\frac{5}{10} \quad \text{Rename } \frac{3}{5} \text{ as } \frac{6}{10}. \text{ Rename } \frac{1}{2} \text{ as } \frac{5}{10}.$$

$$c = -3\frac{11}{10} \quad \text{Subtract.}$$

$$c = -4\frac{1}{10} \quad \text{Rename } \frac{11}{10} \text{ as } 1\frac{1}{10}.$$

**3** Solve  $r = 5\frac{1}{4} - 2\frac{2}{3}$ . The least common denominator of 4 and 3 is 12.

$$r = 5\frac{3}{12} - 2\frac{8}{12} \quad \text{Rename } \frac{1}{4} \text{ as } \frac{3}{12}. \text{ Rename } \frac{2}{3} \text{ as } \frac{8}{12}.$$

$$r = 4\frac{15}{12} - 2\frac{8}{12} \quad \text{Rename } 5\frac{3}{12} \text{ as } 4\frac{15}{12}.$$

$$r = 2\frac{7}{12} \quad \text{Subtract.}$$

**Solve each equation. Write the solution in simplest form.**

1.  $n = \frac{3}{4} + \frac{1}{3}$

2.  $\frac{7}{8} - \frac{2}{3} = k$

3.  $-\frac{11}{12} - \frac{1}{2} = y$

4.  $1\frac{1}{2} + \left(-1\frac{1}{5}\right) = v$

5.  $x = -3\frac{2}{3} + \left(-1\frac{1}{6}\right)$

6.  $m = 10\frac{11}{12} + 9\frac{3}{8}$

7.  $p = 7\frac{1}{3} - \left(-2\frac{5}{9}\right)$

8.  $-\frac{15}{16} - \frac{3}{8} = f$

9.  $3\frac{4}{5} - \left(-5\frac{1}{2}\right) = c$