

Name: _____

Adding Fractions

with the Unlike Denominator, Requires Simplifying

The diagram illustrates the process of adding fractions with unlike denominators. It shows the conversion of $\frac{1}{3}$ to $\frac{2}{6}$ by multiplying both the numerator and denominator by 2. Then, $\frac{1}{6}$ is added to $\frac{2}{6}$ to get $\frac{3}{6}$. Finally, $\frac{3}{6}$ is simplified to $\frac{1}{2}$ by dividing both the numerator and denominator by 3. The word "same" is written between the two $\frac{1}{6}$ fractions to indicate they have the same denominator.

Add the fractions and simplify the answers.

a.
$$\begin{array}{r} \frac{2}{12} \\ + \frac{4}{6} \\ \hline \end{array}$$

b.
$$\begin{array}{r} \frac{4}{8} \\ + \frac{1}{4} \\ \hline \end{array}$$

c.
$$\begin{array}{r} \frac{3}{5} \\ + \frac{2}{10} \\ \hline \end{array}$$

d.
$$\begin{array}{r} \frac{1}{3} \\ + \frac{3}{9} \\ \hline \end{array}$$

e.
$$\begin{array}{r} \frac{2}{10} \\ + \frac{2}{5} \\ \hline \end{array}$$

f.
$$\begin{array}{r} \frac{3}{6} \\ + \frac{2}{12} \\ \hline \end{array}$$

g.
$$\begin{array}{r} \frac{1}{2} \\ + \frac{1}{10} \\ \hline \end{array}$$

h.
$$\begin{array}{r} \frac{1}{6} \\ + \frac{1}{3} \\ \hline \end{array}$$

i.
$$\begin{array}{r} \frac{1}{6} \\ + \frac{4}{12} \\ \hline \end{array}$$

j.
$$\begin{array}{r} \frac{1}{4} \\ + \frac{2}{8} \\ \hline \end{array}$$

k.
$$\begin{array}{r} \frac{1}{5} \\ + \frac{2}{10} \\ \hline \end{array}$$

l.
$$\begin{array}{r} \frac{4}{14} \\ + \frac{1}{7} \\ \hline \end{array}$$

m.
$$\begin{array}{r} \frac{1}{4} \\ \frac{1}{3} \\ + \frac{3}{12} \\ \hline \end{array}$$

n.
$$\begin{array}{r} \frac{1}{2} \\ \frac{1}{10} \\ + \frac{1}{5} \\ \hline \end{array}$$

o.
$$\begin{array}{r} \frac{1}{14} \\ \frac{2}{7} \\ + \frac{1}{7} \\ \hline \end{array}$$

p.
$$\begin{array}{r} \frac{1}{8} \\ \frac{1}{2} \\ + \frac{1}{8} \\ \hline \end{array}$$

ANSWER KEY

Adding Fractions

with the Unlike Denominator, Requires Simplifying

$$\begin{array}{r} \frac{1}{3} \\ + \frac{1}{6} \\ \hline \end{array} \quad \frac{1}{3} = \frac{2}{6} \quad \frac{1}{3} = \frac{2}{6} \quad \frac{1}{6} = \frac{1}{6} \quad \text{same} \quad \frac{1}{3} = \frac{2}{6} \quad \frac{1}{6} = \frac{1}{6} \quad + \quad \frac{1}{3} \\ + \frac{1}{6} = \frac{1}{6} \quad + \frac{1}{6} = \frac{1}{6} \quad + \frac{1}{6} = \frac{1}{6} \quad + \frac{1}{6} = \frac{1}{6} \quad + \frac{1}{6} = \frac{1}{6} \\ \hline \frac{3}{6} \quad \frac{3}{6} = \frac{1}{2}$$

Add the fractions and simplify the answers.

a. $\frac{2}{12} = \frac{2}{12}$
 $+\frac{4}{6} = \frac{8}{12}$
 $\hline \frac{10}{12} = \frac{5}{6}$

b. $\frac{4}{8} = \frac{4}{8}$
 $+\frac{1}{4} = \frac{2}{8}$
 $\hline \frac{6}{8} = \frac{3}{4}$

c. $\frac{3}{5} = \frac{6}{10}$
 $+\frac{2}{10} = \frac{2}{10}$
 $\hline \frac{8}{10} = \frac{4}{5}$

d. $\frac{1}{3} = \frac{3}{9}$
 $+\frac{3}{9} = \frac{3}{9}$
 $\hline \frac{6}{9} = \frac{2}{3}$

e. $\frac{2}{10} = \frac{2}{10}$
 $+\frac{2}{5} = \frac{4}{10}$
 $\hline \frac{6}{10} = \frac{3}{5}$

f. $\frac{3}{6} = \frac{6}{12}$
 $+\frac{2}{12} = \frac{2}{12}$
 $\hline \frac{8}{12} = \frac{2}{3}$

g. $\frac{1}{2} = \frac{5}{10}$
 $+\frac{1}{10} = \frac{1}{10}$
 $\hline \frac{6}{10} = \frac{3}{5}$

h. $\frac{1}{6} = \frac{1}{6}$
 $+\frac{1}{3} = \frac{2}{6}$
 $\hline \frac{3}{6} = \frac{1}{2}$

i. $\frac{1}{6} = \frac{2}{12}$
 $+\frac{4}{12} = \frac{4}{12}$
 $\hline \frac{6}{12} = \frac{1}{2}$

j. $\frac{1}{4} = \frac{2}{8}$
 $+\frac{2}{8} = \frac{2}{8}$
 $\hline \frac{4}{8} = \frac{1}{2}$

k. $\frac{1}{5} = \frac{2}{10}$
 $+\frac{2}{10} = \frac{2}{10}$
 $\hline \frac{4}{10} = \frac{2}{5}$

l. $\frac{4}{14} = \frac{4}{14}$
 $+\frac{1}{7} = \frac{2}{14}$
 $\hline \frac{6}{14} = \frac{3}{7}$

m. $\frac{1}{4} = \frac{3}{12}$
 $\frac{1}{3} = \frac{4}{12}$
 $+\frac{3}{12} = \frac{3}{12}$
 $\hline \frac{10}{12} = \frac{5}{6}$

n. $\frac{1}{2} = \frac{5}{10}$
 $\frac{1}{10} = \frac{1}{10}$
 $+\frac{1}{5} = \frac{2}{10}$
 $\hline \frac{8}{10} = \frac{4}{5}$

o. $\frac{1}{14} = \frac{1}{14}$
 $\frac{2}{7} = \frac{4}{14}$
 $+\frac{1}{7} = \frac{2}{14}$
 $\hline \frac{7}{14} = \frac{1}{2}$

p. $\frac{1}{8} = \frac{1}{8}$
 $\frac{1}{2} = \frac{4}{8}$
 $+\frac{1}{8} = \frac{1}{8}$
 $\hline \frac{6}{8} = \frac{3}{4}$