



SKILL 3: Adding Fractions with Unlike Denominators

Two fractions with different denominators have **unlike denominators**. To add fractions with unlike denominators, change them to equivalent fractions with the same denominator.

You can find equivalent fractions by either multiplying or dividing the numerator and the denominator of a fraction by the same nonzero number. The **least common denominator (LCD)** of two fractions is the least common multiple of the two denominators.

Example

Add: $\frac{3}{4} + \frac{1}{2}$. Write the sum in simplest form.

Find the least common denominator for $\frac{3}{4}$ and $\frac{1}{2}$ by listing multiples of both denominators.

Multiples of 4: 4, 8, 12, 16

Multiples of 2: 2, 4, 6, 8

The least common multiple of 4 and 2 is 4. So, 4 is also the least common denominator. Only $\frac{1}{2}$ needs to be changed to an equivalent fraction (since $\frac{3}{4}$ already has a denominator of 4).

Multiply the numerator and denominator by 2 to make the denominator 4. $\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$

Add using the equivalent fractions.
Check that the sum is in the simplest form.

$$\begin{array}{r} \frac{3}{4} \rightarrow \frac{3}{4} \\ + \frac{1}{2} \rightarrow \frac{2}{4} \\ \hline \frac{5}{4} = 1\frac{1}{4} \end{array}$$

So, $\frac{3}{4} + \frac{1}{2} = 1\frac{1}{4}$.

Guided Practice

Find $\frac{5}{12} + \frac{5}{8}$ in simplest form.

1. Find the least common multiple of 12 and 8. _____

2. Write as equivalent fractions. $\frac{5}{12} = \frac{\square}{\square}$; $\frac{5}{8} = \frac{\square}{\square}$

3. Add.

$$\begin{array}{r} \frac{5}{12} \rightarrow \frac{\square}{\square} \\ + \frac{5}{8} \rightarrow \frac{\square}{\square} \\ \hline \frac{\square}{\square} = \square \frac{\square}{\square} \end{array}$$

SKILL 3: Practice

Find each sum in simplest form.

1.
$$\begin{array}{r} \frac{1}{2} \\ + \frac{3}{8} \\ \hline \end{array}$$

2.
$$\begin{array}{r} \frac{1}{12} \\ + \frac{3}{4} \\ \hline \end{array}$$

3.
$$\begin{array}{r} \frac{5}{8} \\ + \frac{1}{4} \\ \hline \end{array}$$

4.
$$\begin{array}{r} \frac{5}{6} \\ + \frac{1}{8} \\ \hline \end{array}$$

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

6.
$$\begin{array}{r} \frac{5}{9} \\ + \frac{2}{3} \\ \hline \end{array}$$

7.
$$\begin{array}{r} \frac{3}{4} \\ + \frac{2}{5} \\ \hline \end{array}$$

8.
$$\begin{array}{r} \frac{7}{12} \\ + \frac{1}{3} \\ \hline \end{array}$$

9.
$$\begin{array}{r} \frac{3}{4} \\ + \frac{1}{10} \\ \hline \end{array}$$

10.
$$\begin{array}{r} \frac{1}{3} \\ + \frac{5}{6} \\ \hline \end{array}$$

11.
$$\begin{array}{r} \frac{2}{9} \\ + \frac{1}{6} \\ \hline \end{array}$$

12.
$$\begin{array}{r} \frac{2}{9} \\ + \frac{1}{5} \\ \hline \end{array}$$

13.
$$\begin{array}{r} \frac{3}{5} \\ + \frac{1}{10} \\ \hline \end{array}$$

14.
$$\begin{array}{r} \frac{4}{5} \\ + \frac{1}{3} \\ \hline \end{array}$$

15.
$$\begin{array}{r} \frac{5}{12} \\ + \frac{2}{3} \\ \hline \end{array}$$

16.
$$\begin{array}{r} \frac{2}{3} \\ + \frac{1}{6} \\ \hline \end{array}$$

17.
$$\begin{array}{r} \frac{11}{12} \\ + \frac{1}{6} \\ \hline \end{array}$$

18.
$$\begin{array}{r} \frac{7}{9} \\ + \frac{1}{3} \\ \hline \end{array}$$

19.
$$\begin{array}{r} \frac{3}{4} \\ + \frac{2}{3} \\ \hline \end{array}$$

20.
$$\begin{array}{r} \frac{1}{9} \\ + \frac{5}{6} \\ \hline \end{array}$$

Solve.

21. Lisa spends $\frac{1}{5}$ of an hour doing her math homework and $\frac{1}{3}$ of an hour doing her social studies homework. What fraction of an hour does she spend doing her math and social studies homework? _____

22. Clint rode his bike $\frac{3}{8}$ mile to the library and then $\frac{3}{4}$ mile to the park. How far did he ride altogether? _____



23. Find $\frac{5}{6} + \frac{1}{4}$ in simplest form.

A $\frac{2}{5}$

C $1\frac{1}{4}$

B $\frac{11}{12}$

D $1\frac{1}{12}$

Skill 3

24. Kelly writes for $\frac{3}{10}$ of an hour in the morning and $\frac{2}{10}$ of an hour in the afternoon. How long does she write in all? _____

F $\frac{1}{10}$ h

H $\frac{1}{5}$ h

G $\frac{1}{2}$ h

J $\frac{2}{5}$ h

Skill 2