

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.

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

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

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

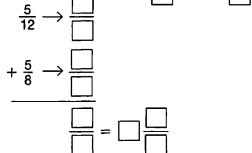
Guided Practice

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. $\frac{5}{12} = \frac{\Box}{\Box}$; $\frac{5}{8} = \frac{\Box}{\Box}$

3. Add.



SKILL 3: Practice

Find each sum in simplest form.

1.
$$\frac{1}{2}$$
 + $\frac{3}{8}$

2.
$$\frac{1}{12}$$
 + $\frac{3}{4}$

3.
$$\frac{5}{8}$$
 + $\frac{1}{4}$

4.
$$\frac{5}{6}$$
 + $\frac{1}{8}$

5.
$$\frac{1}{2}$$
 + $\frac{2}{5}$

6.
$$\frac{5}{9}$$
 $+\frac{2}{3}$

7.
$$\frac{3}{4}$$

8.
$$\frac{7}{13}$$

9.
$$\frac{3}{4}$$
 + $\frac{1}{10}$

10.
$$\frac{1}{3}$$
 $+ \frac{5}{6}$

11.
$$\frac{2}{9}$$
 + $\frac{1}{6}$

12.
$$\frac{2}{9}$$
 + $\frac{1}{5}$

13.
$$\frac{3}{5}$$
 + $\frac{1}{10}$

14.
$$\frac{4}{5}$$
 + $\frac{1}{3}$

15.
$$\frac{5}{12}$$
 $+\frac{2}{3}$

16.
$$\frac{2}{3}$$
 + $\frac{1}{6}$

17.
$$\frac{11}{12}$$
 $+ \frac{1}{6}$

18.
$$\frac{7}{9}$$
 + $\frac{1}{3}$

19.
$$\frac{3}{4}$$
 + $\frac{2}{3}$

20.
$$\frac{1}{9}$$
 $+\frac{5}{6}$

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 $1\frac{1}{12}$

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?

Skill 2

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

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

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

$$\frac{1}{5} \frac{2}{5} h$$