

Adding and Subtracting Fractions with Unlike Denominators



Today's Objective: You will learn how to add and subtract with unlike denominators.

Unlike Denominators: Denominators which are different in two fractions.

Least Common Denominator (LCD): The least common multiple (LCM) of any two (or more) denominators.

EX: 30 is the LCD of $\frac{1}{6}$ and $\frac{4}{15}$

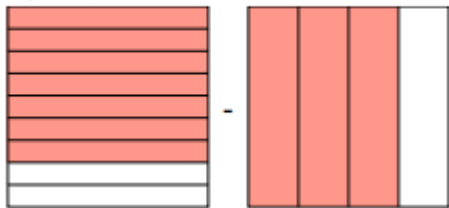
STRATEGY #1: Draw a model



1. Visually show each fraction
2. Add or subtract the whole numbers and the fractions
3. Simplify the fraction if possible

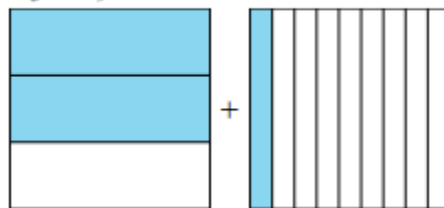
EX #1: Find the difference:

$$\frac{7}{9} - \frac{3}{4} =$$



EX #2: Find the sum:

$$\frac{2}{3} + \frac{1}{9} =$$



STRATEGY #2: Common Denom Method



1. Convert both numbers to fractions with a common denominator
2. Convert both to improper fractions
3. Add or subtract across the numerators; the denominator, once common, acts as a label and remains the same
4. Simplify the fraction if possible

EX #1: Find the difference:

The problem: $6 \frac{2}{3} - 4 \frac{2}{5}$

Common denom: 15

1) Convert 1st mixed #: $6 \frac{2}{3} = 6 \frac{10}{15}$

1) Convert 2d mixed #: $4 \frac{2}{5} = 4 \frac{6}{15}$

2) Convert to improper fractions:

$$\text{Improper: } 6 \frac{10}{15} = \frac{100}{15}$$

$$\text{Improper: } 4 \frac{6}{15} = \frac{66}{15}$$

3) Subtract & simplify:

$$\frac{100}{15} - \frac{66}{15} = \frac{100-66}{15} = \frac{34}{15} = 2 \frac{4}{15}$$

EX #2: Find the difference:

The problem: $20 \frac{4}{6} - 15 \frac{1}{4}$

Common denom: 12

1) Convert 1st mixed #: $20 \frac{4}{6} = 20 \frac{8}{12}$

1) Convert 2d mixed #: $15 \frac{1}{4} = 15 \frac{3}{12}$

2) Convert to improper fractions:

$$\text{Improper: } 20 \frac{8}{12} = \frac{248}{12}$$

$$\text{Improper: } 15 \frac{3}{12} = \frac{183}{12}$$

3) Subtract & simplify:

$$\frac{248}{12} - \frac{183}{12} = \frac{248-183}{12} = \frac{65}{12} = 4 \frac{5}{12} = 4 \frac{1}{3}$$

STRATEGY #3: Traditional Method



1. Convert the fractions to equivalent fractions by finding a common denominator
2. Add or subtract the whole numbers and the fractions
3. Simplify the fraction if possible



EX #1: Find the difference:

The problem: $\frac{3}{4} - \frac{1}{3}$

Common Denom: 12

Convert 1st fraction: $\frac{3}{4} = \frac{9}{12}$

Convert 2^d fraction: $\frac{1}{3} = \frac{4}{12}$

Compute: $\frac{9}{12} - \frac{4}{12} = \frac{5}{12}$

Simplest Form: $\frac{5}{12}$

EX #2: Find the sum:

The problem: $\frac{73}{100} + \frac{13}{25}$

Common Denom: 100

Convert 1st fraction: $\frac{73}{100}$

Convert 2^d fraction: $\frac{13}{25} = \frac{52}{100}$

Compute: $\frac{73}{100} + \frac{52}{100} = \frac{125}{100}$

Simplify: $1 \frac{25}{100} = 1 \frac{1}{4}$

Simplest Form: $1 \frac{1}{4}$



YOU TRY:

1. $\frac{6}{7} + \frac{2}{3} = b$

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

3. $\frac{18}{20} - \frac{4}{5} = m$

4. $\frac{8}{9} + \frac{1}{6} = g$