

Adding and Subtracting Fractions with Unlike Denominators

30 minutes, 3 stages

When you add or subtract fractions, they need to speak the same language. Fractions with different denominators are like trying to combine metres and centimetres without converting first. You'll learn to find common denominators so you can combine fractions accurately ([Outcome](#)).

Stage 1: Find the Common Denominator (10 min)

Two fractions can only be added or subtracted when they have the same denominator. Your job is to rewrite each pair of fractions so they match.

Task 1: For each pair, identify which denominator is a multiple of the other. Write the factor that relates them.

Example: $\frac{1}{4}$ and $\frac{1}{8}$. Since $8 = 4 \times 2$, the factor is 2.

- $\frac{2}{3}$ and $\frac{5}{6}$
- $\frac{3}{5}$ and $\frac{7}{10}$
- $\frac{1}{4}$ and $\frac{3}{16}$
- $\frac{4}{9}$ and $\frac{2}{3}$

Task 2: Rewrite each pair with a common denominator.

- $\frac{1}{2}$ and $\frac{3}{8}$
- $\frac{2}{5}$ and $\frac{1}{3}$
- $\frac{3}{4}$ and $\frac{5}{12}$

Stage 2: Add and Subtract (15 min)

Now that you can find common denominators, add or subtract the fractions. Remember: you only add or subtract the numerators. The denominator stays the same.

Task 1: Add these fractions. Show your working.

- $\frac{1}{4} + \frac{1}{8} =$
- $\frac{2}{5} + \frac{3}{10} =$
- $\frac{1}{3} + \frac{1}{6} =$

Task 2: Subtract these fractions. Show your working.

- $\frac{5}{6} - \frac{1}{3} =$
- $\frac{7}{8} - \frac{1}{4} =$
- $\frac{3}{5} - \frac{2}{10} =$

Task 3: Solve this problem.

You have $\frac{3}{4}$ of a pizza. Your friend eats $\frac{1}{6}$ of the whole pizza from your slice. How much pizza do you have left?

Stage 3: Check Your Understanding (5 min)

Answer these questions to see what you've learned.

Self-check:

1. Why do fractions need a common denominator before you add or subtract them? Give an example with two fractions that have different denominators.
2. When you add $\frac{2}{3} + \frac{1}{4}$, what is the common denominator you would use, and what does each fraction become?
3. Look at your answer to the pizza problem. Does your answer make sense? Explain why or why not.