

Adding and Subtracting Mixed Numbers: How It Works

Work with the wholes and the fractions separately, then put them back together.

1. Add the wholes, then add the fractions



1 whole and 2 fifths

2 wholes and 1 fifth

$$1 \frac{2}{5} + 2 \frac{1}{5} = 3 \frac{3}{5}$$

Wholes: $1 + 2 = 3$. Fifths: $\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$. Together that is $3 \frac{3}{5}$. Subtracting works the same way: wholes from wholes, fractions from fractions. **The denominator stays the same.**

2. Adding: when the fractions make more than one whole

Example $3 \frac{2}{3} + 5 \frac{2}{3}$

Step 1. Add the wholes. $3 + 5 = 8$.

Step 2. Add the fractions. $\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$.

Step 3. $\frac{4}{3}$ is more than one whole. Regroup it: $\frac{4}{3} = 1 \frac{1}{3}$.

Step 4. Add it to the wholes. $8 + 1 \frac{1}{3} = 9 \frac{1}{3}$.



$$\frac{2}{3} + \frac{2}{3} = \frac{4}{3}$$



$$\frac{4}{3} = 1 \frac{1}{3} : \text{one whole and one third}$$

3. Subtracting: when the first fraction is too small

Example $4 \frac{1}{4} - 1 \frac{3}{4}$

Step 1. Look at the fractions. You cannot take $\frac{3}{4}$ from $\frac{1}{4}$.

Step 2. Borrow 1 whole and cut it into fourths. $4 \frac{1}{4}$ becomes $3 \frac{5}{4}$.

Step 3. Subtract. $3 - 1 = 2$ and $\frac{5}{4} - \frac{3}{4} = \frac{2}{4}$.

Step 4. Simplify. $2 \frac{2}{4} = 2 \frac{1}{2}$.



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



$$3 \frac{5}{4} : \text{the same amount}$$

3 wholes and 5 fourths (outlined)

4. Different denominators: rename first

$$2 \frac{1}{2} + 1 \frac{1}{3} = 2 \frac{3}{6} + 1 \frac{2}{6} = 3 \frac{5}{6}$$

Halves and thirds are different sizes. Rename both as sixths, then add or subtract as before.

Adding: if the fraction part of the answer is 1 whole or more, regroup it into the whole number.

Subtracting: if the first fraction is too small, borrow 1 whole before you subtract.

Watch out Never add or subtract the denominators. $\frac{2}{3} + \frac{2}{3}$ is $\frac{4}{3}$, not $\frac{4}{6}$. Thirds stay thirds.