



Adding unlike denominators

You cannot add different-sized pieces

- Today: why $1/2 + 1/3$ is not $2/5$.

The symmetrical answer

- $\frac{1}{2} + \frac{1}{3}$. Tops: $1 + 1 = 2$. Bottoms: $2 + 3 = 5$.
- $\frac{2}{5}$.

Tidy. And $\frac{2}{5}$ is LESS than $\frac{1}{2}$.

Check before you calculate

- $\frac{1}{3}$ is less than $\frac{1}{2}$.
- So the answer is between $\frac{1}{2}$ and 1.

$\frac{2}{5}$ was rejected before we found a denominator.

Halves and thirds are different pieces

- Nothing to count. So make them the same.

Cut both into SIXTHS.

Now it is counting

- $1/2 = 3/6$. $1/3 = 2/6$.
- 3 sixths + 2 sixths.

5/6. Between $1/2$ and 1, as predicted.

Change the tops too

- $1/2$ written as $1/6$ is wrong — the pieces got smaller,
- so you need MORE of them.

$1/6 + 1/6 = 2/6 = 1/3$. Back where we started.

Mixed numbers

- $3\frac{1}{4} - 1\frac{3}{4}$. Cannot do $\frac{1}{4} - \frac{3}{4}$?
- 13 quarters – 7 quarters = 6 quarters.

$1\frac{1}{2}$. Not $2\frac{1}{2}$ — that is more than $3 - 1$.

Your turn

- $\frac{2}{3} + \frac{1}{4}$. Then $\frac{5}{6} - \frac{1}{3}$.
- Before each: between which two numbers must the answer lie?

Predict the range. Then calculate.