



Simplifying fractions

Perhaps you think that fractions can never be simple, but they can often be written more simply. Have a look at these fractions and decide which one is the simplest. $\frac{1}{2}$, $\frac{4}{8}$, $\frac{5}{10}$, $\frac{6}{12}$, $\frac{9}{18}$.

You probably chose $\frac{1}{2}$, which represents a half. But all the other fractions in the list can be simplified and they're the same as $\frac{1}{2}$. They're known as equivalent fractions.

The important thing is that you must find a number that divides into **both** the top and bottom numbers at the same time. This is sometimes called **cancelling down**.

This is the case with the fractions above. For these fractions, you can divide the top and bottom of each one by the **numerator** - the number on the top.

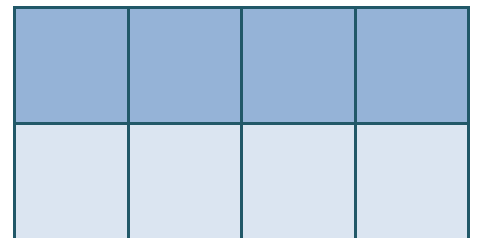
Take $\frac{4}{8}$. We can divide both numbers by 4.

For the top number: $4 \div 4 = 1$

For the bottom number: $8 \div 4 = 2$

So $\frac{4}{8}$ is the same as $\frac{1}{2}$.

	÷4	
$\frac{4}{8}$	⇒	$\frac{1}{2}$
	÷4	



You can see this process in the above diagram - the four squares in darker blue are one half of the whole.

Now try simplifying the other fractions in the same way: $\frac{5}{10}$, $\frac{6}{12}$, $\frac{9}{18}$.

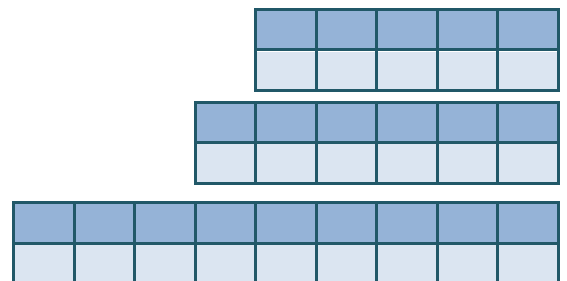
Tip

The numerators - top numbers - 5, 6 and 9 are the biggest numbers that will go into both the numerator and the denominator - bottom number - exactly.

$5 \div 5 = 1$ and $10 \div 5 = 2$, so $\frac{5}{10}$ is the same as $\frac{1}{2}$.

$6 \div 6 = 1$ and $12 \div 6 = 2$, so $\frac{6}{12}$ is the same as $\frac{1}{2}$.

$9 \div 9 = 1$ and $18 \div 9 = 2$, so $\frac{9}{18}$ is the same as $\frac{1}{2}$.



So you can simplify **all** the fractions on this page to $\frac{1}{2}$.