

# Fractions – simplifying fractions

These fractions are all equivalent to one half:  $\frac{1}{2}$   $\frac{2}{4}$   $\frac{6}{12}$   $\frac{75}{150}$   $\frac{3455}{6910}$

Which is the simplest?  $\frac{1}{2}$

A fraction is in its simplest form when 1 is the only number that both numbers can be divided by. We simplify fractions to make reading and working with fractions easier.

## 1 Circle the simplest fraction in each group:

a  $\frac{1}{2}$   $\frac{2}{4}$   $\frac{50}{100}$

b  $\frac{33}{99}$   $\frac{3}{9}$   $\frac{1}{3}$

c  $\frac{25}{100}$   $\frac{1}{4}$   $\frac{5}{20}$

d  $\frac{2}{3}$   $\frac{6}{9}$   $\frac{16}{24}$

To find the simplest fraction, we divide both the numerator and the denominator by the same number. It makes sense for this to be the biggest number we can find so we don't have to keep dividing. This number is called the **Highest Common Factor (HCF)**.

Look at:

$$\frac{6}{18} = \frac{\boxed{?}}{\boxed{?}}$$

What is the biggest number that goes into both 6 and 18?

6 is the biggest number that goes into 18 and 6.

$$\frac{6 \div 6}{18 \div 6} = \frac{\boxed{1}}{\boxed{3}}$$

## 2 Find the highest common factor and then simplify:

a  $\frac{15}{20}$  HCF is  $\boxed{\phantom{00}}$   $\rightarrow \frac{15 \div \boxed{\phantom{00}}}{20 \div \boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

b  $\frac{9}{30}$  HCF is  $\boxed{\phantom{00}}$   $\rightarrow \frac{9 \div \boxed{\phantom{00}}}{30 \div \boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

c  $\frac{16}{24}$  HCF is  $\boxed{\phantom{00}}$   $\rightarrow \frac{16 \div \boxed{\phantom{00}}}{24 \div \boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

d  $\frac{12}{36}$  HCF is  $\boxed{\phantom{00}}$   $\rightarrow \frac{12 \div \boxed{\phantom{00}}}{36 \div \boxed{\phantom{00}}} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

## 3 Wally says he has simplified these fractions as far as he can. Is he right? If not, find the simplest fraction:

a  $\frac{16}{20} \rightarrow \frac{8}{10}$

b  $\frac{50}{100} \rightarrow \frac{25}{50} \rightarrow \frac{5}{10}$

c  $\frac{24}{36} \rightarrow \frac{4}{6}$

d  $\frac{15}{20} \rightarrow \frac{3}{4}$

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4 Write the following fractions in their simplest form:

a  $\frac{28}{49} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

b  $\frac{12}{20} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

c  $\frac{24}{42} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

d  $\frac{13}{39} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

e  $\frac{32}{36} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

f  $\frac{9}{15} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

g  $\frac{16}{48} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

h  $\frac{15}{55} = \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}}$

If you are not sure what the HCF is, guess, check and improve is a useful strategy. Try your choice out and then look at your new fraction.

Could it be any simpler? Is 1 the ONLY number that could go into both the numerator and the denominator?

5 Solve the following problems. Write your answers in the simplest form:

a Luke scored  $\frac{16}{20}$  on a test. What fraction was incorrect?

b Marika scored  $\frac{12}{20}$  on the same test. What fraction did she get right?

c 25 out of the 75 pupils in Year 6 ride their bikes to school. What fraction does this represent?

d Out of the 26 pupils in 6F, 14 rate Maths as their favourite subject. What fraction is this?

e What fraction did not choose Maths as their favourite subject?



6 Colour and match the fractions on the bottom row with their simplest form:

$\frac{1}{2}$

$\frac{2}{3}$

$\frac{3}{5}$

$\frac{1}{9}$

$\frac{1}{4}$

$\frac{3}{4}$

$\frac{15}{20}$

$\frac{25}{100}$

$\frac{9}{81}$

$\frac{60}{100}$

$\frac{12}{18}$

$\frac{40}{80}$