

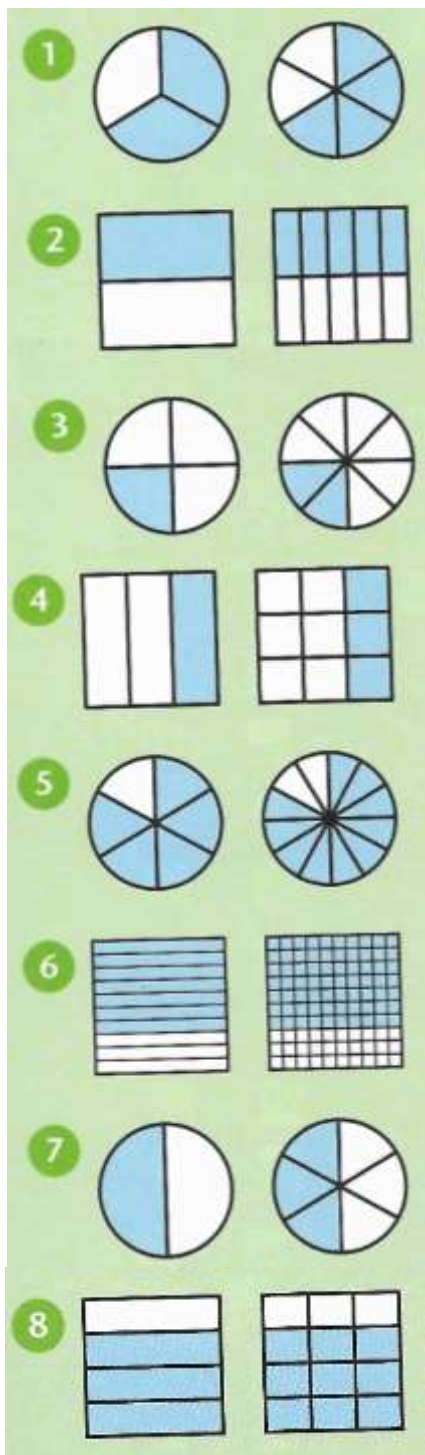
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Maths Tasks – Yellow Challenge

Work out the equivalent fractions shown in each pair of diagrams.

Remember to count how many equal parts there are and record as the denominator, then count how many of the parts are shaded and record as the numerator.

Write the equivalent fractions separated with an = sign.



$$\frac{2}{3} = \frac{4}{6}$$

$$\frac{1}{2} = \frac{5}{10}$$

$$\frac{1}{4} = \frac{2}{8}$$

$$\frac{1}{3} = \frac{3}{9}$$

$$\frac{5}{6} = \frac{10}{12}$$

$$\frac{7}{10} = \frac{70}{100}$$

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

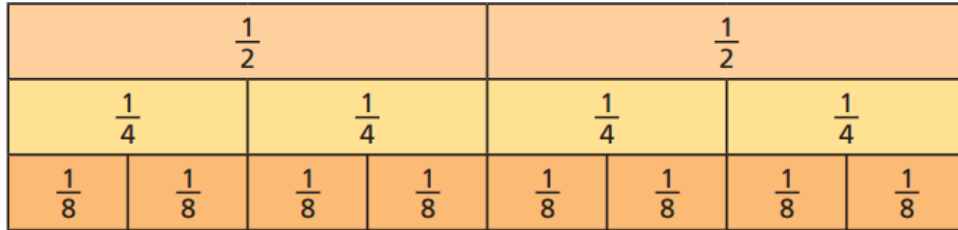
$$\frac{3}{4} = \frac{9}{12}$$

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Maths Tasks – Blue Challenge

1

Use the fraction wall to complete the equivalent fractions.



a) $\frac{1}{2} = \frac{\boxed{2}}{4}$

c) $\frac{2}{4} = \frac{4}{\boxed{8}}$

e) $\frac{\boxed{6}}{8} = \frac{3}{4}$

b) $\frac{1}{2} = \frac{\boxed{4}}{8}$

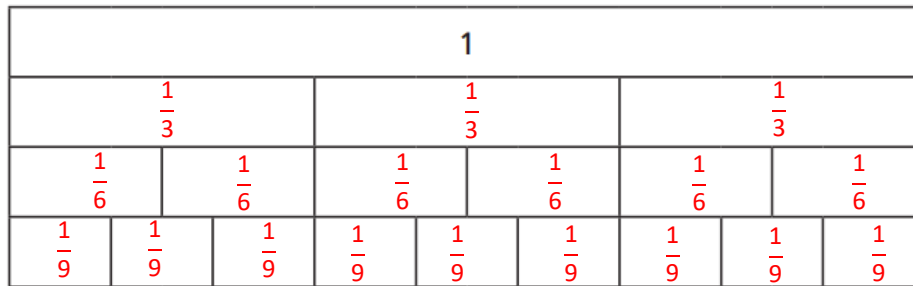
d) $\frac{2}{8} = \frac{\boxed{1}}{4}$

f) $\frac{2}{2} = \frac{\boxed{4}}{4} = \frac{\boxed{8}}{8}$

2

a) Label the fractions on the fraction wall.

If you are not able to print this page, have a go at drawing the fraction wall as accurately and neatly as possible before labelling the fractions.



b) Use the fraction wall to complete the equivalent fractions.

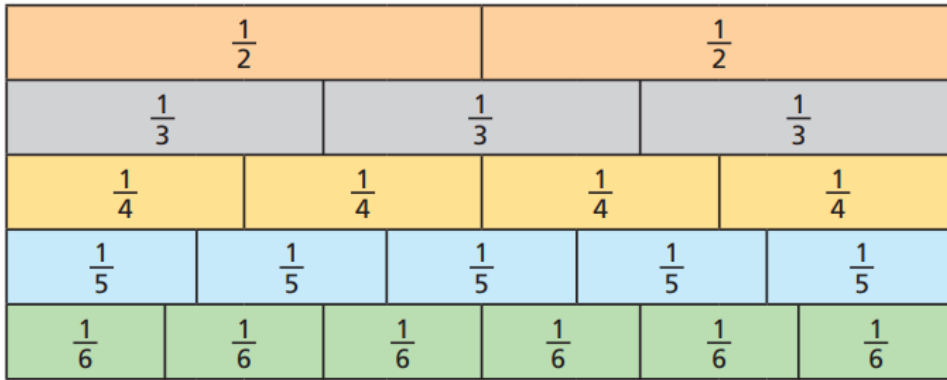
$\frac{1}{3} = \frac{\boxed{2}}{6} = \frac{3}{\boxed{9}}$

$\frac{\boxed{2}}{3} = \frac{4}{\boxed{6}} = \frac{6}{9}$

$\frac{3}{\boxed{3}} = \frac{6}{\boxed{6}} = \frac{9}{\boxed{9}} = 1$

3

Here is a fraction wall.



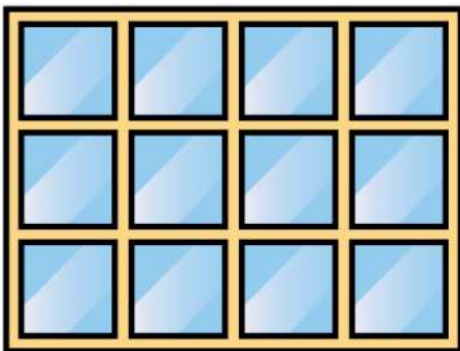
Is each statement true or false?

- a) $\frac{1}{2}$ is equivalent to $\frac{3}{6}$ **True** d) $\frac{2}{3}$ is equivalent to $\frac{4}{5}$ **False**
- b) $\frac{2}{3}$ is equivalent to $\frac{3}{4}$ **False** e) $\frac{2}{3}$ is equivalent to $\frac{4}{6}$ **True**
- c) $\frac{2}{4}$ is equivalent to $\frac{3}{6}$ **True** f) $\frac{3}{5}$ is equivalent to $\frac{4}{6}$ **False**

Write your own equivalent fractions statements.

4

How many equivalent fractions can you see in this picture?



Children can give a variety of possibilities.
Examples:

$$\frac{1}{2} = \frac{6}{12} = \frac{3}{6}$$

$$\frac{1}{4} = \frac{3}{12}$$

5

Eva says,



I know that $\frac{3}{4}$ is equivalent to $\frac{3}{8}$ because the numerators are the same.

Is Eva correct?

Explain why.

Eva is not correct.
 $\frac{3}{4}$ is equivalent to $\frac{6}{8}$
When the numerators are the same, the larger the denominator, the smaller the fraction.

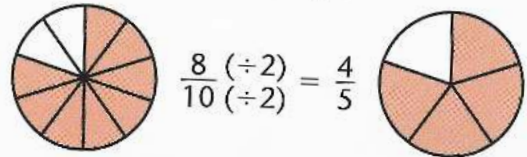
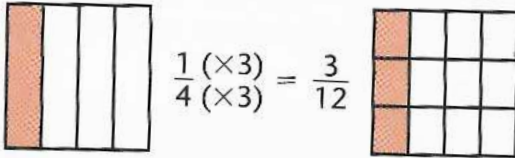
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Maths Tasks – Green Challenge

Identify the equivalent fractions by multiplying the numerator or dividing the denominator of the given fraction.

Examples

You can change a fraction into an equivalent fraction by multiplying or dividing (cancelling).



1	$\frac{1}{2} = \frac{3}{6}$	9	$\frac{2}{6} = \frac{4}{12}$
2	$\frac{3}{4} = \frac{-9}{12}$	10	$\frac{1}{3} = \frac{2}{6}$
3	$\frac{1}{3} = \frac{3}{9}$	11	$\frac{1}{2} = \frac{50}{100}$
4	$\frac{3}{10} = \frac{30}{100}$	12	$\frac{3}{4} = \frac{6}{8}$
5	$\frac{3}{6} = \frac{6}{12}$	13	$\frac{4}{5} = \frac{8}{10}$
6	$\frac{1}{4} = \frac{2}{8}$	14	$\frac{2}{3} = \frac{6}{9}$
7	$\frac{1}{5} = \frac{2}{10}$	15	$\frac{1}{4} = \frac{3}{12}$
8	$\frac{2}{3} = \frac{8}{12}$	16	$\frac{5}{6} = \frac{10}{12}$

Identify the odd one out from each set of fractions. Try to explain clearly why each fraction is the odd one out.

17	$\frac{4}{12}$	$\frac{3}{8}$	$\frac{2}{6}$	$\frac{3}{9}$
18	$\frac{5}{10}$	$\frac{6}{12}$	$\frac{2}{5}$	$\frac{3}{6}$
19	$\frac{8}{12}$	$\frac{75}{100}$	$\frac{9}{12}$	$\frac{6}{8}$
20	$\frac{9}{12}$	$\frac{8}{12}$	$\frac{4}{6}$	$\frac{6}{9}$

More green challenge on the next page...

Rosie says,



To find equivalent fractions, whatever you do to the numerator, you do to the denominator.

$\frac{4}{8} = \frac{1}{5}$ and $\frac{4}{8} = \frac{6}{10}$
are incorrect.

Rosie's method doesn't always work. It works when multiplying or dividing both the numerator or denominator but not when adding or subtracting the same thing to both.

Using her method, here are the equivalent fractions Rosie has found for $\frac{4}{8}$

$$\frac{4}{8} = \frac{8}{16} \quad \frac{4}{8} = \frac{6}{10}$$

$$\frac{4}{8} = \frac{2}{4} \quad \frac{4}{8} = \frac{1}{5}$$

Are all Rosie's fractions equivalent?
Does Rosie's method work?
Explain your reasons.

Are the statements always, sometimes or never true? Prove it with some examples.

a) The greater the numerator, the greater the fraction.

always

sometimes

never

e.g. $\frac{4}{5} > \frac{1}{5}$ BUT $\frac{1}{2} > \frac{2}{5}$

b) Fractions equivalent to one half have even numerators.

always

sometimes

never

e.g. $\frac{1}{2}$ (odd numerator) $\frac{2}{4}$ (even numerator)

c) If a fraction is equivalent to one half, the denominator will be double the numerator.

always

sometimes

never

No matter how many parts it's split into, the number shaded (numerator) will be half the total parts (denominator).

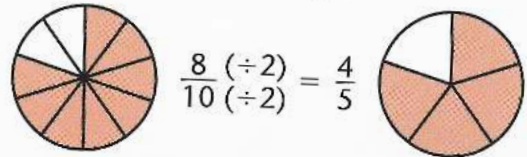
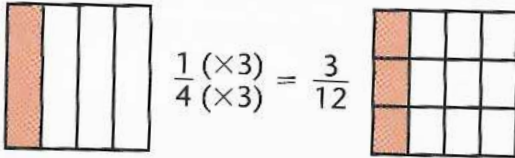
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Maths Tasks – White Challenge

Identify the equivalent fractions by multiplying the numerator or dividing the denominator of the given fraction.

Examples

You can change a fraction into an equivalent fraction by multiplying or dividing (cancelling).



1 $\frac{5}{8} = \frac{10}{16}$	9 $\frac{25}{100} = \frac{1}{4}$
2 $\frac{3}{4} = \frac{15}{20}$	10 $\frac{10}{15} = \frac{2}{3}$
3 $\frac{2}{7} = \frac{4}{14}$	11 $\frac{12}{20} = \frac{3}{5}$
4 $\frac{7}{10} = \frac{70}{100}$	12 $\frac{8}{16} = \frac{1}{2}$
5 $\frac{4}{9} = \frac{8}{18}$	13 $\frac{55}{100} = \frac{11}{20}$
6 $\frac{3}{5} = \frac{30}{50}$	14 $\frac{5}{25} = \frac{1}{5}$
7 $\frac{5}{8} = \frac{10}{16}$	15 $\frac{14}{18} = \frac{7}{9}$
8 $\frac{4}{5} = \frac{80}{100}$	16 $\frac{45}{50} = \frac{9}{10}$

Identify the odd one out from each set of fractions.

Explain clearly and in detail why each fraction is the odd one out.

Write the odd one out in each set of fractions.

17 $\frac{5}{20}$	$\frac{4}{10}$	$\frac{2}{8}$	$\frac{25}{100}$
18 $\frac{80}{100}$	$\frac{20}{24}$	$\frac{12}{15}$	$\frac{16}{20}$
19 $\frac{6}{60}$	$\frac{3}{18}$	$\frac{2}{12}$	$\frac{5}{30}$
20 $\frac{12}{16}$	$\frac{15}{20}$	$\frac{8}{12}$	$\frac{75}{100}$

Ron thinks you can only simplify even numbered fractions because you keep on halving the numerator and denominator until you get an odd number.

Do you agree?
Explain your answer.

Ron is wrong. For example $\frac{3}{9}$ can be simplified to $\frac{1}{3}$ and these are all odd numbers.

Here are some fraction cards.
All of the fractions are equivalent.

$$\frac{4}{A} \quad \frac{B}{C} \quad \frac{20}{50}$$

$A + B = 16$
Calculate the value of C .

$$\begin{aligned} A &= 10 \\ B &= 6 \\ C &= 15 \end{aligned}$$

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

Find the value of \bullet

$$\bullet = \boxed{14}$$

Explain clearly how you worked this out.

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Maths Tasks – White+ Extension

Clare and Barney need to find an exit route for the maze below. They can travel up, down, left, right and diagonally to equivalent fractions. Barney must start and end on a shaded square. Clare must start and end on a white square.

Various answers, for example:



Barney's route

$\frac{36}{54}$	$\frac{5}{9}$	$\frac{4}{6}$	$\frac{16}{24}$	$\frac{24}{36}$
$\frac{20}{30}$	$\frac{32}{48}$	$\frac{12}{18}$	$\frac{28}{42}$	$\frac{24}{56}$
$\frac{5}{8}$	$\frac{9}{21}$	$\frac{18}{42}$	$\frac{20}{28}$	$\frac{12}{28}$
$\frac{3}{7}$	$\frac{6}{15}$	$\frac{9}{21}$	$\frac{15}{35}$	$\frac{27}{63}$



Clare's route

$\frac{36}{54}$	$\frac{5}{9}$	$\frac{4}{6}$	$\frac{16}{24}$	$\frac{20}{28}$
$\frac{20}{30}$	$\frac{32}{48}$	$\frac{12}{18}$	$\frac{28}{42}$	$\frac{24}{56}$
$\frac{5}{8}$	$\frac{9}{21}$	$\frac{18}{42}$	$\frac{12}{28}$	$\frac{20}{28}$
$\frac{3}{7}$	$\frac{6}{15}$	$\frac{6}{14}$	$\frac{15}{35}$	$\frac{27}{63}$

Marc the Master Wizard is working out some equivalent fractions. He has written this in his spell book:

Give 4 possible sets of equivalent fractions showing the values of A and B.

— Possible answers:

— $\frac{2}{2} = \frac{12}{12}$ $\frac{2}{3} = \frac{8}{12}$ $\frac{2}{4} = \frac{6}{12}$ $\frac{2}{6} = \frac{4}{12}$

