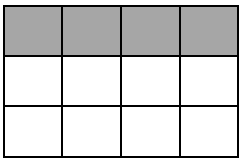
WelTec/Whitireia Mathematics Series

Equivalent Fractions

Fractions are a part of a whole. The fraction below shows a rectangle where four squares have been shaded. This fraction is $\frac{4}{12}$.



This fraction is also $\frac{2}{6}$ and $\frac{1}{3}$ of the whole shape.

$$\frac{1}{3} = \frac{2}{6} = \frac{4}{12}.$$

These fractions are **equivalent** fractions. They have the same value. There are many other fractions which are equivalent to these, for example: $\frac{10}{30} = \frac{200}{600} = \frac{16}{48}$.

Example 1

Find three fractions equivalent to $\frac{3}{7}$.

Solution

a) $\frac{3}{7} = \frac{6}{14}$ (X 2 above, X 2 below)

b) $\frac{3}{7} = \frac{9}{21}$ (X 3 above, X 3 below)

c) $\frac{3}{7} = \frac{12}{28}$ (X 4 above, X 4 below)

Activity 1

Find three equivalent fractions to $\frac{2}{5}$.

a) $\frac{2}{5} = \frac{\quad}{\quad}$ (X 2 above, X 2 below)

b) $\frac{2}{5} = \frac{\quad}{\quad}$ (X 3 above, X 3 below)

c) $\frac{2}{5} = \frac{\quad}{\quad}$ (X 4 above, X 4 below)

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Example 2

Complete these equivalent fractions.

a) $\frac{2}{5} = \frac{?}{10}$ A1106289374B

b) b) $\frac{7}{10} = \frac{84}{?}$ c) $\frac{12}{15} = \frac{?}{5}$

Solution

a) $\frac{4}{10}$ b) $\frac{6}{15}$ c) $\frac{8}{20}$

Solution

a) $\frac{2}{5} =$ (X 2 / X 2) $\frac{4}{10}$ {The multiplier is 2, as 10 ÷ 5 = 2}

b) $\frac{7}{10} =$ (X 12 / X 12) $\frac{84}{120}$ {The multiplier is 12, as 84 ÷ 7 = 12}

c) $\frac{12}{15} =$ (÷ 3 / ÷ 3) $\frac{4}{5}$ {The multiplier is ÷3, as 15 ÷ 5 = 3}

Activity 2

Complete these equivalent fractions.

a) $\frac{2}{3} = \frac{6}{?}$ b) $\frac{2}{5} = \frac{?}{20}$ c) $\frac{1}{2} = \frac{?}{4}$ d) $\frac{7}{10} = \frac{70}{?}$ e) $\frac{7}{10} = \frac{84}{?}$

f) $\frac{90}{100} = \frac{?}{10}$ g) $\frac{15}{9} = \frac{?}{81}$ h) $\frac{18}{21} = \frac{6}{?}$ i) $\frac{4}{3} = \frac{?}{12}$ j) $\frac{24}{36} = \frac{6}{?}$

Solution

b) $\frac{6}{9}$ b) $\frac{8}{20}$ c) $\frac{2}{4}$ d) $\frac{70}{100}$ e) $\frac{84}{120}$ f) $\frac{9}{10}$ g) $\frac{135}{81}$ h) $\frac{6}{7}$ i) $\frac{16}{12}$ j) $\frac{6}{9}$

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