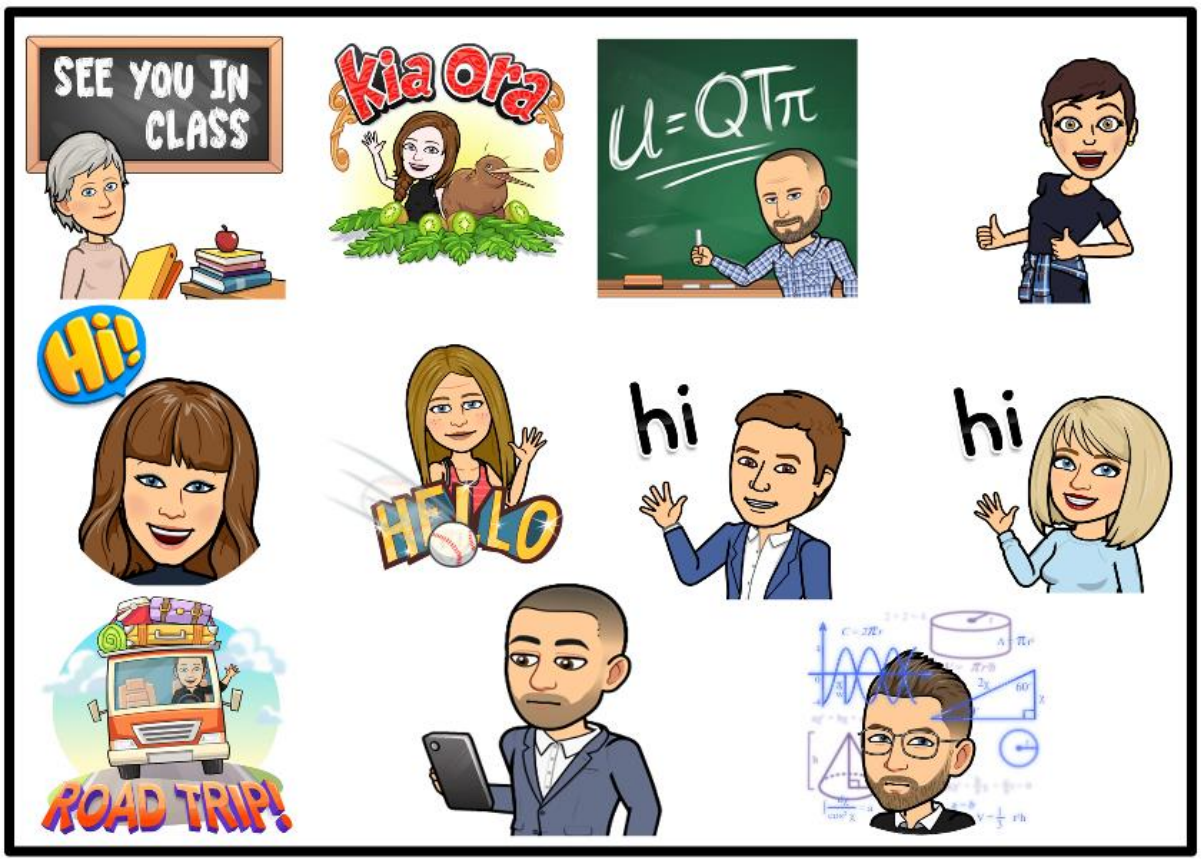
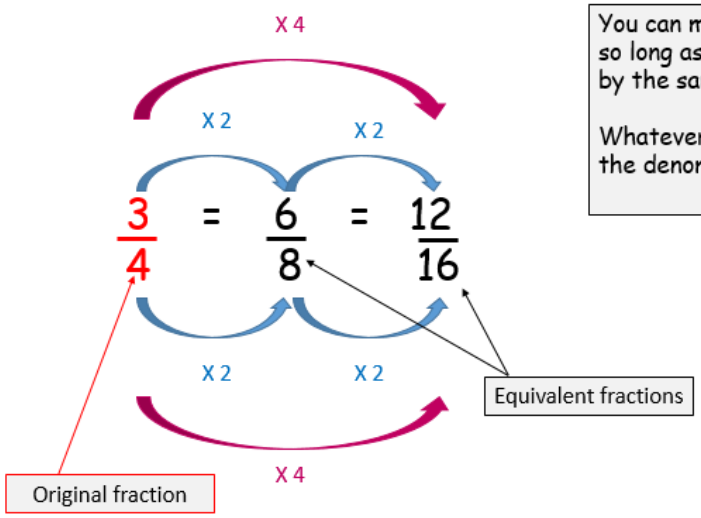
BOOKLET 4

Year 7LZ



Fraction Equivalence (lesson 1)

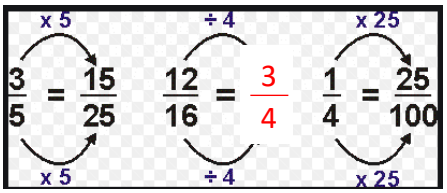
How to – Making equivalent fractions



You can multiply the original fraction by any number so long as you multiply the top (N) and the bottom (D) by the same number.

Whatever you do to the numerator you must do to the denominator: Numerator e.g. (x 5)
Denominator (x 5)

Remember you can use x or ÷ to make equivalent fractions:



Question 1: Find the missing numbers

(a) $\frac{2}{3} = \frac{}{6}$ (b) $\frac{1}{5} = \frac{}{20}$ (c) $\frac{3}{4} = \frac{}{12}$ (d) $\frac{5}{7} = \frac{10}{}$

(e) $\frac{}{5} = \frac{15}{25}$ (f) $\frac{4}{} = \frac{12}{21}$ (g) $\frac{3}{10} = \frac{}{50}$ (h) $\frac{7}{8} = \frac{14}{}$

(i) $\frac{3}{4} = \frac{30}{}$ (j) $\frac{}{8} = \frac{55}{88}$ (k) $\frac{2}{9} = \frac{10}{}$ (l) $\frac{2}{3} = \frac{}{18}$

(m) $\frac{1}{20} = \frac{5}{}$ (n) $\frac{5}{6} = \frac{}{18}$ (o) $\frac{3}{8} = \frac{9}{}$ (p) $\frac{7}{12} = \frac{}{36}$

Question 2: Find the missing numbers

(a) $\frac{6}{7} = \frac{42}{}$ (b) $\frac{9}{20} = \frac{63}{}$ (c) $\frac{5}{12} = \frac{35}{}$ (d) $\frac{7}{8} = \frac{}{64}$

(e) $\frac{4}{} = \frac{32}{72}$ (f) $\frac{3}{4} = \frac{}{52}$ (g) $\frac{7}{25} = \frac{140}{}$ (h) $\frac{}{15} = \frac{42}{105}$

(i) $\frac{11}{16} = \frac{88}{}$ (j) $\frac{2}{9} = \frac{}{108}$ (k) $\frac{13}{25} = \frac{}{375}$ (l) $\frac{9}{} = \frac{81}{144}$

Add fractions with the same denominator (lesson 2)

Numerator (N)

Denominator (D)

$\frac{1}{7} + \frac{4}{7} = \frac{5}{7}$

$\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$

Add/subtract top

Denominator stays the same.

Question 1: Work out the following additions.
You may use the shapes to help.

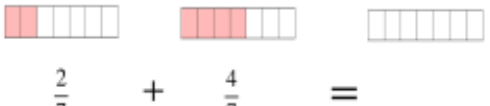
(a)

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

(b)

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

(c)



$\frac{2}{7} + \frac{4}{7} =$

(d)

$\frac{2}{15} + \frac{11}{15} =$

Question 2: Work out the following additions

(a) $\frac{1}{5} + \frac{1}{5}$ (b) $\frac{3}{11} + \frac{2}{11}$ (c) $\frac{1}{9} + \frac{7}{9}$ (d) $\frac{3}{7} + \frac{3}{7}$

(e) $\frac{6}{11} + \frac{2}{11}$ (f) $\frac{7}{13} + \frac{4}{13}$ (g) $\frac{3}{5} + \frac{1}{5}$ (h) $\frac{10}{21} + \frac{10}{21}$

Question 3: Work out the following subtractions

(a) $\frac{3}{5} - \frac{1}{5}$ (b) $\frac{6}{7} - \frac{2}{7}$ (c) $\frac{4}{5} - \frac{3}{5}$ (d) $\frac{7}{13} - \frac{1}{13}$

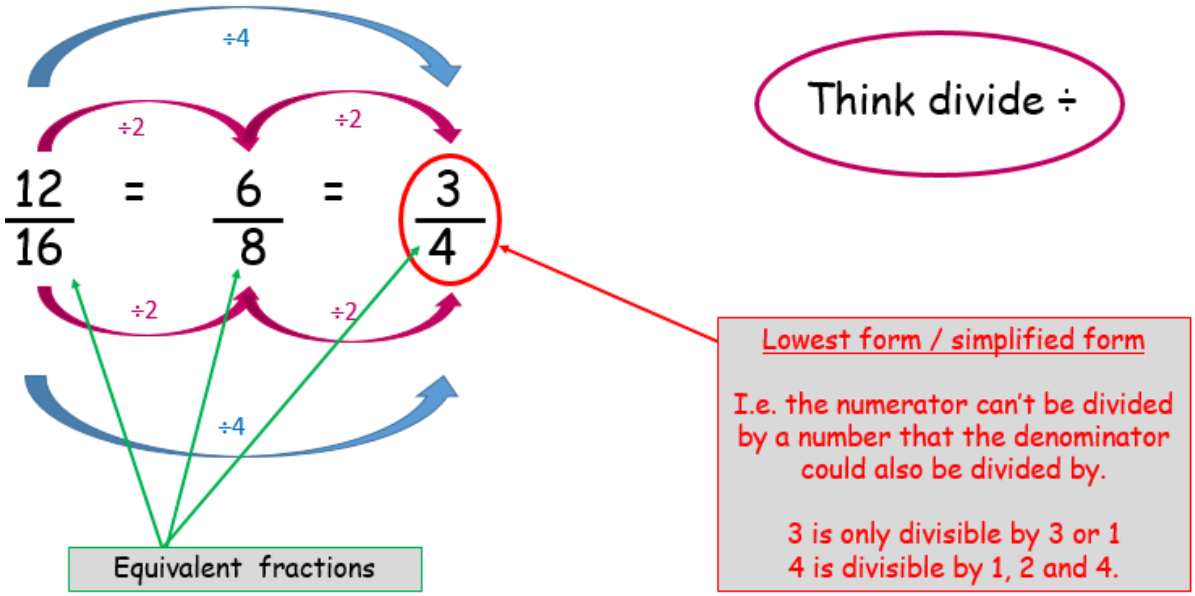
(e) $\frac{9}{11} - \frac{6}{11}$ (f) $\frac{16}{21} - \frac{8}{21}$ (g) $\frac{5}{6} - \frac{5}{6}$ (h) $\frac{16}{25} - \frac{9}{25}$

Simplifying fractions (lesson 3)

When you simplify fractions you are also creating equivalent fractions.

The difference is when finding equivalent fractions you can **multiply (x) or divide (÷).**

When simplifying fractions you should **only** use **divide (÷).**



Remember dividing by the biggest number possible takes you to the simplified form quicker.

In the example above $\frac{12}{16}$ could have been divided by 4 straight away instead of by 2 twice. To leave you with its simplified form of $\frac{3}{4}$

Question 1:

Simplify ÷ 3

1) $\frac{3}{15}$ 2) $\frac{4}{20}$ 3) $\frac{7}{28}$

4) $\frac{5}{45}$ 5) $\frac{6}{36}$ 6) $\frac{7}{56}$

7) $\frac{3}{21}$ 8) $\frac{2}{18}$ 9) $\frac{8}{24}$

10) $\frac{2}{9}$ 11) $\frac{9}{54}$ 12) $\frac{7}{63}$

Question 2:

Simplify the following

1) $\frac{5}{30}$ 2) $\frac{22}{77}$ 3) $\frac{40}{50}$

4) $\frac{15}{45}$ 5) $\frac{35}{70}$ 6) $\frac{24}{32}$

7) $\frac{36}{54}$ 8) $\frac{21}{49}$ 9) $\frac{24}{56}$

10) $\frac{18}{63}$ 11) $\frac{33}{42}$ 12) $\frac{16}{40}$

13) $\frac{15}{60}$ 14) $\frac{36}{54}$ 15) $\frac{54}{81}$

16) $\frac{64}{72}$ 17) $\frac{25}{60}$ 18) $\frac{21}{70}$

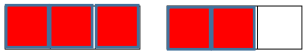
Improper fractions & mixed numbers (lesson 4)

The Numerator 5 is bigger than the denominator 3.

Improper fractions are **top heavy** fractions e.g. $\frac{5}{3}$

To convert an **improper fraction** to a **mixed number** you have to find how many **whole** denominators you can take out of the numerator and how much of a remainder there might be

e.g. $\frac{5}{3}$ 5 ÷ 3 = 1 r 2 so there will be 1 whole and 2 parts remaining $1\frac{2}{5}$



A mixed number has a **whole** number and a **fraction** remaining.

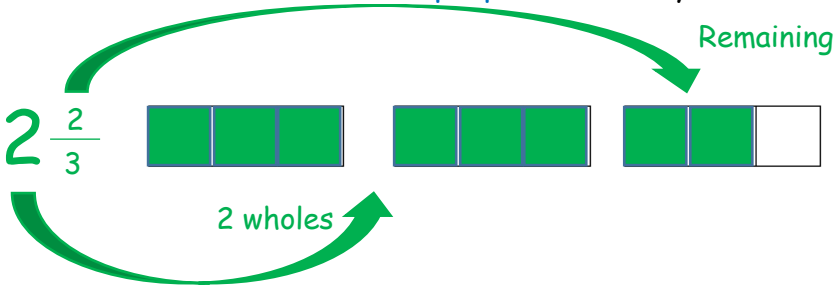
Question 1:

Change the improper fractions into mixed numbers

1) $\frac{13}{6}$	2) $\frac{10}{3}$	3) $\frac{19}{5}$	4) $\frac{7}{4}$
5) $\frac{23}{7}$	6) $\frac{23}{6}$	7) $\frac{19}{8}$	8) $\frac{12}{5}$
9) $\frac{16}{5}$	10) $\frac{22}{7}$	11) $\frac{17}{5}$	12) $\frac{21}{8}$
13) $\frac{19}{6}$	14) $\frac{14}{5}$	15) $\frac{27}{7}$	16) $\frac{18}{5}$
17) $\frac{17}{8}$	18) $\frac{17}{6}$	19) $\frac{13}{5}$	20) $\frac{5}{3}$

To turn a mixed number into an improper fraction you do the opposite:

e.g. $2\frac{2}{3}$



The **denominator** stays the same (in the above example 3).

The new numerator is **whole number** x **denominator** + remaining numerator

$$2 \times 3 + 2 = \frac{8}{3}$$

Question 2:

Change the following mixed numbers into improper fractions

1) $2\frac{1}{4}$

2) $2\frac{1}{2}$

3) $2\frac{1}{5}$

4) $1\frac{2}{3}$

5) $3\frac{3}{5}$

6) $1\frac{7}{9}$

7) $1\frac{1}{5}$

8) $3\frac{1}{2}$

9) $4\frac{1}{2}$

10) $1\frac{1}{4}$

11) $1\frac{2}{5}$

12) $2\frac{3}{4}$

13) $1\frac{1}{3}$

14) $3\frac{1}{3}$

15) $1\frac{1}{2}$

16) $1\frac{3}{5}$

17) $2\frac{2}{3}$

18) $2\frac{1}{3}$

19) $2\frac{3}{7}$

20) $1\frac{3}{4}$

Lesson 1 Answers

Question 1: Find the missing numbers

(a) $\frac{2}{3} = \frac{4}{6}$ (b) $\frac{1}{5} = \frac{4}{20}$ (c) $\frac{3}{4} = \frac{9}{12}$ (d) $\frac{5}{7} = \frac{10}{14}$

(e) $\frac{3}{5} = \frac{15}{25}$ (f) $\frac{4}{7} = \frac{12}{21}$ (g) $\frac{3}{10} = \frac{15}{50}$ (h) $\frac{7}{8} = \frac{14}{16}$

(i) $\frac{3}{4} = \frac{30}{40}$ (j) $\frac{5}{8} = \frac{55}{88}$ (k) $\frac{2}{9} = \frac{10}{45}$ (l) $\frac{2}{3} = \frac{12}{18}$

(m) $\frac{1}{20} = \frac{5}{100}$ (n) $\frac{5}{6} = \frac{15}{18}$ (o) $\frac{3}{8} = \frac{9}{24}$ (p) $\frac{7}{12} = \frac{21}{36}$

Question 2: Find the missing numbers

(a) $\frac{6}{7} = \frac{42}{49}$ (b) $\frac{9}{20} = \frac{63}{140}$ (c) $\frac{5}{12} = \frac{35}{84}$ (d) $\frac{7}{8} = \frac{56}{64}$

(e) $\frac{4}{9} = \frac{32}{72}$ (f) $\frac{3}{4} = \frac{39}{52}$ (g) $\frac{7}{25} = \frac{140}{500}$ (h) $\frac{6}{15} = \frac{42}{105}$

(i) $\frac{11}{16} = \frac{88}{128}$ (j) $\frac{2}{9} = \frac{24}{108}$ (k) $\frac{13}{25} = \frac{195}{375}$ (l) $\frac{9}{16} = \frac{81}{144}$

Lesson 2 Answers

Question 1:

(a) $\frac{2}{3}$ (b) $\frac{3}{5}$ (c) $\frac{6}{7}$ (d) $\frac{13}{15}$

Question 2:

(a) $\frac{2}{5}$ (b) $\frac{5}{11}$ (c) $\frac{8}{9}$ (d) $\frac{6}{7}$

(e) $\frac{8}{11}$ (f) $\frac{11}{13}$ (g) $\frac{4}{5}$ (h) $\frac{20}{21}$

Question 3:

(a) $\frac{2}{5}$ (b) $\frac{4}{7}$ (c) $\frac{1}{5}$ (d) $\frac{6}{13}$

(e) $\frac{3}{11}$ (f) $\frac{8}{21}$ (g) 0 (h) $\frac{7}{25}$

Lesson 3 Answers

Question 1:

ANSWERS

1)	$\frac{1}{5}$	2)	$\frac{1}{5}$	3)	$\frac{1}{4}$
4)	$\frac{1}{9}$	5)	$\frac{1}{6}$	6)	$\frac{1}{8}$
7)	$\frac{1}{7}$	8)	$\frac{1}{9}$	9)	$\frac{1}{3}$
10)	$\frac{2}{9}$	11)	$\frac{1}{6}$	12)	$\frac{1}{9}$

Question 2:

1)	$\frac{1}{6}$	2)	$\frac{2}{7}$	3)	$\frac{4}{5}$
4)	$\frac{1}{3}$	5)	$\frac{1}{2}$	6)	$\frac{3}{4}$
7)	$\frac{2}{3}$	8)	$\frac{3}{7}$	9)	$\frac{3}{7}$
10)	$\frac{2}{7}$	11)	$\frac{11}{14}$	12)	$\frac{2}{5}$
13)	$\frac{1}{4}$	14)	$\frac{2}{3}$	15)	$\frac{2}{3}$
16)	$\frac{8}{9}$	17)	$\frac{5}{12}$	18)	$\frac{3}{10}$

Lesson 4 Answers

Question 1:

1)	$\frac{13}{6}$	$2\frac{1}{6}$	2)	$\frac{10}{3}$	$3\frac{1}{3}$	3)	$\frac{19}{5}$	$3\frac{4}{5}$	4)	$\frac{7}{4}$	$1\frac{3}{4}$
5)	$\frac{23}{7}$	$3\frac{2}{7}$	6)	$\frac{23}{6}$	$3\frac{5}{6}$	7)	$\frac{19}{8}$	$2\frac{3}{8}$	8)	$\frac{12}{5}$	$2\frac{2}{5}$
9)	$\frac{16}{5}$	$3\frac{1}{5}$	10)	$\frac{22}{7}$	$3\frac{1}{7}$	11)	$\frac{17}{5}$	$3\frac{2}{5}$	12)	$\frac{21}{8}$	$2\frac{5}{8}$
13)	$\frac{19}{6}$	$3\frac{1}{6}$	14)	$\frac{14}{5}$	$2\frac{4}{5}$	15)	$\frac{27}{7}$	$3\frac{6}{7}$	16)	$\frac{18}{5}$	$3\frac{3}{5}$
17)	$\frac{17}{8}$	$2\frac{1}{8}$	18)	$\frac{17}{6}$	$2\frac{5}{6}$	19)	$\frac{13}{5}$	$2\frac{3}{5}$	20)	$\frac{5}{3}$	$1\frac{2}{3}$

Question 2:

1)	$2\frac{1}{4}$	$\frac{9}{4}$	2)	$2\frac{1}{2}$	$\frac{5}{2}$	3)	$2\frac{1}{5}$	$\frac{11}{5}$	4)	$1\frac{2}{3}$	$\frac{5}{3}$
5)	$3\frac{3}{5}$	$\frac{18}{5}$	6)	$1\frac{7}{9}$	$\frac{16}{9}$	7)	$1\frac{1}{5}$	$\frac{6}{5}$	8)	$3\frac{1}{2}$	$\frac{7}{2}$
9)	$4\frac{1}{2}$	$\frac{9}{2}$	10)	$1\frac{1}{4}$	$\frac{5}{4}$	11)	$1\frac{2}{5}$	$\frac{7}{5}$	12)	$2\frac{3}{4}$	$\frac{11}{4}$
13)	$1\frac{1}{3}$	$\frac{4}{3}$	14)	$3\frac{1}{3}$	$\frac{10}{3}$	15)	$1\frac{1}{2}$	$\frac{3}{2}$	16)	$1\frac{3}{5}$	$\frac{8}{5}$
17)	$2\frac{2}{3}$	$\frac{8}{3}$	18)	$2\frac{1}{3}$	$\frac{7}{3}$	19)	$2\frac{3}{7}$	$\frac{17}{7}$	20)	$1\frac{3}{4}$	$\frac{7}{4}$