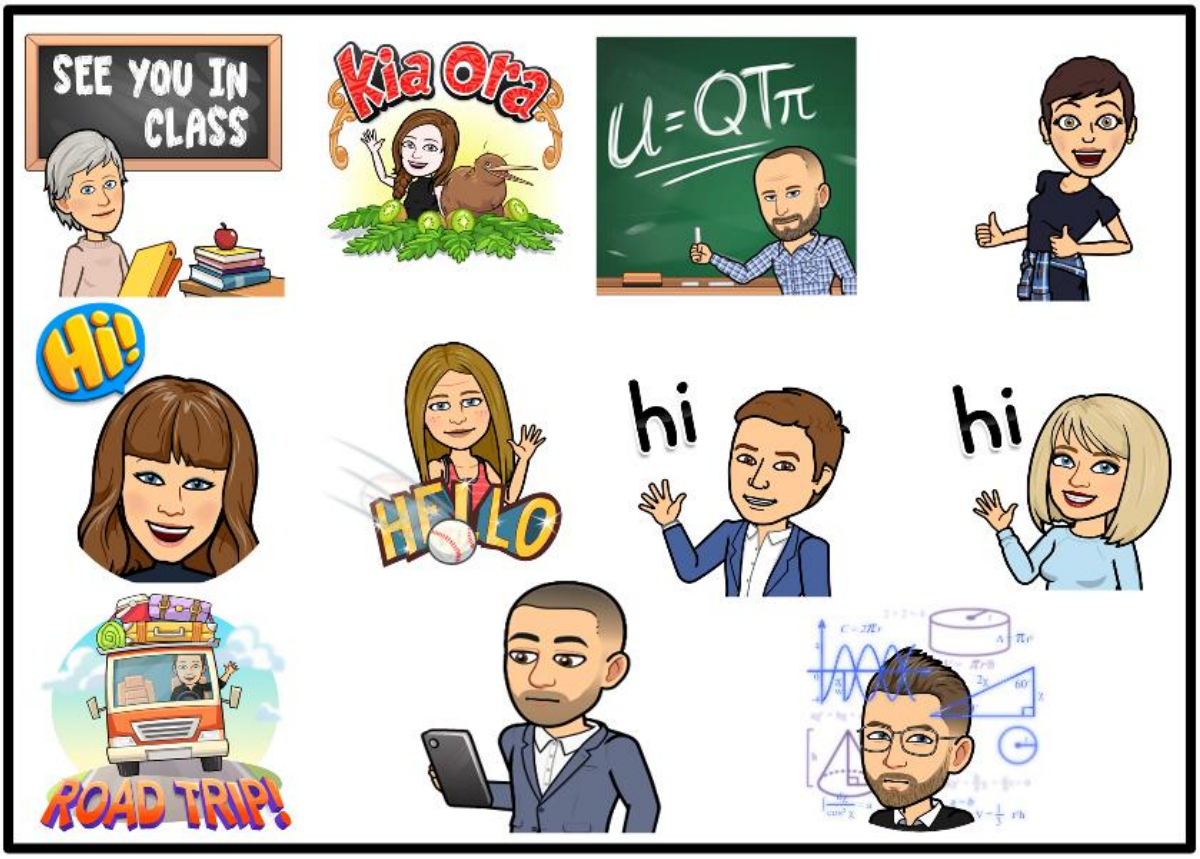
BOOKLET 7 Year 9

Foundation

Fraction Operations



Adding fractions with different denominators (lesson 1)

$$\frac{1}{6} + \frac{2}{9}$$

$$\frac{3 \cdot 1}{3 \cdot 6} + \frac{2 \cdot 2}{9 \cdot 2}$$

Rewrite with a common denominator.
Multiples of 6: 6, 12, 18, 24 . . .
Multiplies of 9: 9, 18 . . .

$$\frac{3}{18} + \frac{4}{18}$$

Add the fractions (add the numerators, the denominator stays the same).

$$\boxed{\frac{7}{18}}$$

If you are stuck on this- watch the video

https://corbettmaths.com/2012/08/21/fractions-addition-and-subtraction/

Question 1: Work out the following additions and subtractions.
Give your answers as simplified fractions.

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

(e) $\frac{8}{9} - \frac{1}{3}$ (f) $\frac{2}{3} + \frac{1}{6}$ (g) $\frac{3}{10} + \frac{2}{5}$ (h) $\frac{3}{8} + \frac{1}{4}$

(i) $\frac{7}{15} - \frac{1}{5}$ (j) $\frac{3}{4} - \frac{2}{5}$ (k) $\frac{3}{10} + \frac{3}{8}$ (l) $\frac{2}{5} + \frac{4}{7}$

(m) $\frac{11}{15} - \frac{1}{6}$ (n) $\frac{5}{11} + \frac{1}{4}$ (o) $\frac{3}{14} + \frac{1}{3}$ (p) $\frac{11}{13} - \frac{1}{2}$

(q) $\frac{7}{20} + \frac{2}{5}$ (r) $\frac{8}{9} - \frac{3}{5}$ (s) $\frac{11}{18} + \frac{1}{6}$ (t) $\frac{39}{100} - \frac{7}{20}$

(u) $\frac{4}{15} + \frac{5}{12}$ (v) $\frac{2}{3} - \frac{9}{16}$ (w) $\frac{19}{30} + \frac{1}{8}$ (x) $\frac{7}{12} + \frac{3}{14}$

Adding fractions with mixed number answers (lesson 2)

$$\frac{5}{3} + \frac{3}{4}$$

we need to find the common denominator of 3 and 4.

3, 6, 9, **12,** 15,.....

4, 8, **12,** 16, 20,.....

$$\frac{5}{3} = \frac{20}{12}$$

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

Change into 12

How many 12s go into 29?

$$\frac{29}{12} = 2\frac{5}{12}$$

If you are stuck on this- watch the video

https://corbettmaths.com/2012/08/21/fractions-addition-and-subtraction/

Question 2: Work out the following additions.
Give your answers as simplified fractions.
If necessary, give any answers as mixed numbers.

(a) $\frac{3}{4} + \frac{1}{2}$ (b) $\frac{5}{9} + \frac{2}{3}$ (c) $\frac{7}{10} + \frac{1}{3}$ (d) $\frac{4}{5} + \frac{3}{4}$

(e) $\frac{19}{20} + \frac{4}{5}$ (f) $\frac{5}{9} + \frac{13}{18}$ (g) $\frac{5}{12} + \frac{9}{10}$ (h) $\frac{4}{7} + \frac{7}{8}$

Multiplying fractions (lesson 3)

Multiplying a fraction by a fraction

What is $\frac{3}{8} \times \frac{2}{5}$?

To multiply two fractions together, multiply the numerators together and multiply the denominators together:

$$\frac{3}{8} \times \frac{4}{5} = \frac{\cancel{12}^{3}}{\cancel{40}_{10}}$$

$$= \frac{3}{10}$$

If you are stuck on this- watch the video

https://corbettmaths.com/2012/08/21/multiplying-fractions-2/

Question 1: Work out each of the following multiplications.
Give each answer in its simplest form.

(a) $\frac{1}{2} \times \frac{1}{5}$ (b) $\frac{1}{2} \times \frac{3}{4}$ (c) $\frac{1}{4} \times \frac{3}{5}$ (d) $\frac{1}{3} \times \frac{1}{3}$

(e) $\frac{5}{6} \times \frac{1}{2}$ (f) $\frac{3}{4} \times \frac{1}{4}$ (g) $\frac{2}{3} \times \frac{1}{7}$ (h) $\frac{5}{8} \times \frac{1}{3}$

(i) $\frac{2}{3} \times \frac{1}{2}$ (j) $\frac{1}{3} \times \frac{3}{4}$ (k) $\frac{3}{10} \times \frac{1}{2}$ (l) $\frac{2}{5} \times \frac{1}{4}$

(m) $\frac{2}{7} \times \frac{3}{4}$ (n) $\frac{5}{7} \times \frac{1}{10}$ (o) $\frac{7}{12} \times \frac{2}{3}$ (p) $\frac{6}{7} \times \frac{2}{3}$

(q) $\frac{6}{7} \times \frac{2}{9}$ (r) $\frac{3}{10} \times \frac{5}{6}$ (s) $\frac{6}{15} \times \frac{3}{4}$ (t) $\frac{3}{5} \times \frac{11}{15}$

(u) $\frac{9}{20} \times \frac{10}{11}$ (v) $\frac{21}{30} \times \frac{2}{3}$ (w) $\frac{12}{25} \times \frac{5}{8}$ (x) $\frac{8}{9} \times \frac{3}{16}$

Question 2: Work out the following multiplications
Give your answers as simplified fractions.
If any answers are top heavy fractions, write as mixed numbers.

(a) $\frac{1}{5} \times 3$ (b) $7 \times \frac{1}{8}$ (c) $\frac{1}{10} \times 4$ (d) $30 \times \frac{1}{2}$

(e) $8 \times \frac{3}{4}$ (f) $\frac{2}{3} \times 12$ (g) $5 \times \frac{1}{3}$ (h) $8 \times \frac{2}{5}$

(i) $\frac{4}{5} \times 20$ (j) $\frac{2}{7} \times 8$ (k) $8 \times \frac{5}{4}$ (l) $\frac{1}{5} \times 360$

Fraction Division (lesson 4)

Dividing a fraction by a fraction

What is $\frac{2}{3} \div \frac{4}{5}$?

To divide by a fraction we multiply by the denominator and divide by the numerator.

$\frac{2}{3} \div \frac{4}{5}$ can be written as $\frac{2}{3} \times \frac{5}{4}$

Swap the numerator and the denominator and multiply.

$$\frac{2}{3} \times \frac{5}{4} = \frac{10}{12}$$

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

If you are stuck on this- watch the video

https://corbettmaths.com/2012/08/21/division-with-fractions/

Question 1: Work out the following divisions.
Give your answers as simplified fractions.
If any answers are top heavy fractions, write as mixed numbers.

(a) $\frac{1}{5} \div \frac{2}{3}$ (b) $\frac{3}{4} \div \frac{4}{5}$ (c) $\frac{1}{2} \div \frac{7}{8}$ (d) $\frac{2}{3} \div \frac{5}{6}$

(e) $\frac{1}{10} \div \frac{4}{9}$ (f) $\frac{6}{11} \div \frac{5}{6}$ (g) $\frac{2}{5} \div \frac{13}{15}$ (h) $\frac{3}{8} \div \frac{7}{9}$

(i) $\frac{3}{5} \div \frac{1}{2}$ (j) $\frac{7}{9} \div \frac{2}{3}$ (k) $\frac{8}{15} \div \frac{7}{10}$ (l) $\frac{9}{10} \div \frac{1}{3}$

(m) $\frac{5}{6} \div \frac{3}{4}$ (n) $\frac{13}{20} \div \frac{8}{11}$ (o) $\frac{4}{17} \div \frac{3}{16}$ (p) $\frac{5}{7} \div \frac{10}{19}$

Lesson 1 Answers

Question 1:

(a) $\frac{9}{10}$	(b) $\frac{11}{14}$	(c) $\frac{5}{6}$	(d) $\frac{2}{15}$
(e) $\frac{5}{9}$	(f) $\frac{5}{6}$	(g) $\frac{7}{10}$	(h) $\frac{5}{8}$
(i) $\frac{4}{15}$	(j) $\frac{7}{20}$	(k) $\frac{27}{40}$	(l) $\frac{34}{35}$
(m) $\frac{17}{30}$	(n) $\frac{31}{44}$	(o) $\frac{23}{42}$	(p) $\frac{9}{26}$
(q) $\frac{3}{4}$	(r) $\frac{13}{45}$	(s) $\frac{7}{9}$	(t) $\frac{1}{25}$
(u) $\frac{41}{60}$	(v) $\frac{5}{48}$	(w) $\frac{91}{120}$	(x) $\frac{67}{84}$

Lesson 2 Answers

Question 2:

(a) $1\frac{1}{4}$	(b) $1\frac{2}{9}$	(c) $1\frac{1}{30}$	(d) $1\frac{11}{20}$
(e) $1\frac{3}{4}$	(f) $1\frac{5}{18}$	(g) $1\frac{19}{60}$	(h) $1\frac{25}{56}$

Lesson 3 Answers

Question 1:

(a) $\frac{1}{10}$	(b) $\frac{3}{8}$	(c) $\frac{3}{20}$	(d) $\frac{1}{9}$
(e) $\frac{5}{12}$	(f) $\frac{3}{16}$	(g) $\frac{2}{21}$	(h) $\frac{5}{24}$
(i) $\frac{1}{3}$	(j) $\frac{1}{4}$	(k) $\frac{3}{20}$	(l) $\frac{1}{10}$
(m) $\frac{3}{14}$	(n) $\frac{1}{14}$	(o) $\frac{7}{18}$	(p) $\frac{4}{7}$
(q) $\frac{4}{21}$	(r) $\frac{1}{4}$	(s) $\frac{3}{10}$	(t) $\frac{11}{25}$
(u) $\frac{9}{22}$	(v) $\frac{7}{15}$	(w) $\frac{3}{10}$	(x) $\frac{1}{6}$

Question 2:

(a) $\frac{3}{5}$	(b) $\frac{7}{8}$	(c) $\frac{2}{5}$	(d) 15
(e) 6	(f) 8	(g) $1\frac{2}{3}$	(h) $3\frac{1}{5}$
(i) 16	(j) $2\frac{2}{7}$	(k) 10	(l) 72

Lesson 4 Answers

Question 1:

(a) $\frac{3}{10}$	(b) $\frac{15}{16}$	(c) $\frac{4}{7}$	(d) $\frac{4}{5}$
(e) $\frac{9}{40}$	(f) $\frac{36}{55}$	(g) $\frac{6}{13}$	(h) $\frac{27}{56}$
(i) $1\frac{1}{5}$	(j) $1\frac{1}{6}$	(k) $\frac{16}{21}$	(l) $2\frac{7}{10}$
(m) $1\frac{1}{9}$	(n) $\frac{143}{160}$	(o) $1\frac{13}{51}$	(p) $1\frac{5}{14}$