
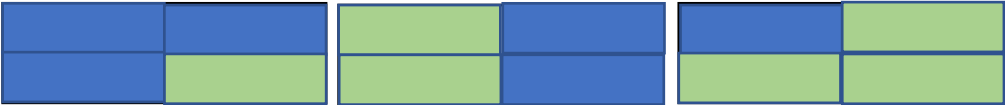

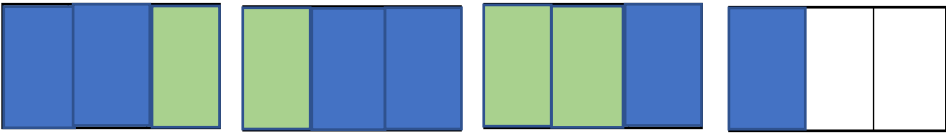


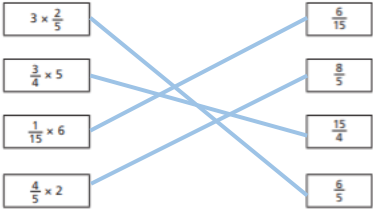


Y8 - Autumn- Block 3 - ANS1 - Represent multiplication of fractions

Question	Answer
1	a) $\frac{1}{8} \times 5$ b) $\frac{1}{3} \times 5$ c) $\frac{1}{4} \times 5$ d) $\frac{3}{4} \times 3$
2	
3	Various answers e.g. a) b) c)
4	a) b) c) d)

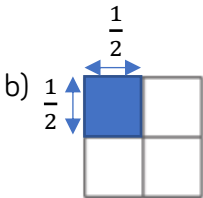
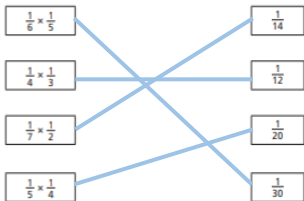
Y8 – Autumn– Block 3 – ANS1 – Represent multiplication of fractions

Question	Answer
5	<p>a) </p> <p>b) </p> <p>c) </p> <p>d) </p>
6	Whitney is looking at the shaded parts and Alex is looking at the unshaded parts.
7	<p>a) <math>3 \times \frac{2}{3}</math> <input checked="" type="checkbox"/> <math>\frac{2}{3} + \frac{2}{3} + \frac{2}{3}</math> <input checked="" type="checkbox"/> <math>\frac{1}{2} + \frac{1}{2} + \frac{1}{2}</math> <input type="checkbox"/> <math>\frac{2}{3} \times 3</math> <input checked="" type="checkbox"/> <math>\frac{1}{3} \times 6</math> <input checked="" type="checkbox"/> <math>6 \times \frac{1}{3}</math> <input checked="" type="checkbox"/></p> <p>b) <math>4 \times \frac{3}{5}</math> <input checked="" type="checkbox"/> <math>\frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{2}{5}</math> <input checked="" type="checkbox"/> <math>\frac{3}{5} + \frac{3}{5} + \frac{3}{5}</math> <input type="checkbox"/> <math>\frac{3}{5} \times 4</math> <input checked="" type="checkbox"/> <math>\frac{1}{5} \times 12</math> <input checked="" type="checkbox"/></p>

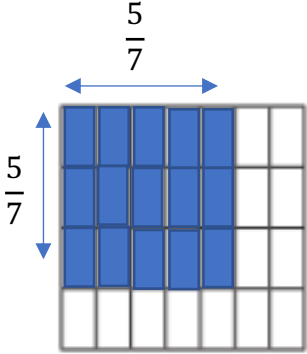
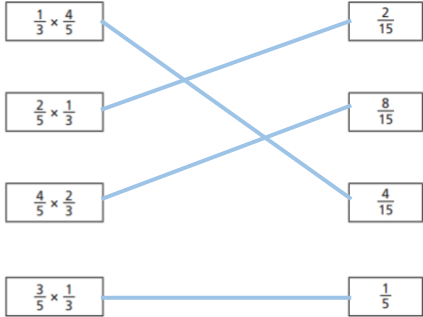
Y8 – Autumn– Block 3 – ANS2 – Multiply a fraction by an integer

Question	Answer
1	a) 15 b) $15a$ c) $15xy$ d) $\frac{15}{7}$
2	
3	a)  b) 
4	a) $2\frac{1}{2}$ b) $2\frac{3}{4}$ c) $3\frac{3}{5}$ d) 5
5	Eva has multiplied the denominator by the integer when she shouldn't have. $4 \times \frac{3}{5} = \frac{12}{5}$
6	a) $3\frac{1}{2}$ b) $5\frac{1}{3}$ c) $1\frac{7}{8}$ d) $2\frac{1}{2}$ e) 5 f) $6\frac{3}{4}$ g) $\frac{12}{17}$ h) $6\frac{2}{3}$ i) 10 j) 6
7	a) $4\frac{4}{5}$ m b) $3\frac{3}{4}$ hours c) 4kg
8	a) 3 b) 5 c) $\frac{3}{11}$ , $1\frac{7}{11}$ d) $\frac{5}{8}$ , $\frac{25}{8}$ e) $\frac{3}{4}$ , 18
9	$8 \times \frac{4}{5} = \frac{8 \times 4}{5} = \frac{4 \times 9}{5} = 4 \times \frac{8}{5}$ $8 \times \frac{4}{5} = 2 \times 4 \times \frac{8}{10} = 2 \times 0.8 \times 4$ $8 \times \frac{4}{5} = 8 \times \frac{2 \times 2}{5} = 8 \times 2 \times \frac{2}{5} = 16 \times \frac{2}{5} = \frac{2}{5} \times 16$ <p>Students should compare their method with a partner.</p>

**Y8 – Autumn– Block 3 – ANS3 – Find the product of a pair of unit fractions**

Question	Answer
1	<p>a) The square is split into 2 equal rows, 1 of these is indicated with an arrow showing <math>\frac{1}{2}</math></p> <p>The square is split into 3 equal columns, 1 of which is indicated with an arrow showing <math>\frac{1}{3}</math></p> <p>These bits are shaded and 1 out of 6 equal parts is shaded.</p> <p>b) </p>
2	<p>a) <math>\frac{1}{15}</math></p> <p>b) <math>\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}</math></p> <p>c) <math>\frac{1}{7} \times \frac{1}{5} = \frac{1}{35}</math></p>
3	
4	<p>a) <math>\frac{1}{8}</math></p> <p>b) <math>\frac{1}{21}</math></p> <p>c) <math>\frac{1}{40}</math></p> <p>d) <math>\frac{1}{42}</math></p> <p>e) <math>\frac{1}{16}</math></p> <p>f) <math>\frac{1}{5} \times \frac{1}{5} = \frac{1}{25}</math></p> <p>g) <math>\frac{1}{10} \times \frac{1}{10} = \frac{1}{100}</math></p> <p>h) <math>\frac{1}{5}</math></p> <p>i) <math>\frac{1}{2}</math></p> <p>j) <math>\frac{1}{4}</math></p>
5	<p>E.g.</p> <p>a) <math>\frac{1}{6} \times \frac{1}{4} = \frac{1}{24}</math></p> <p>b) <math>\frac{1}{3} \times \frac{1}{12} = \frac{1}{36}</math></p> <p>c) <math>\frac{1}{5} \times \frac{1}{8} = \frac{1}{40}</math></p> <p>There are multiple ways to complete each. b) has the most options as 36 has the most factors out of 24, 36 and 40.</p>
6	<p>Yes he is correct because the numerators are both 1 and so it is their product.</p> <p>E.g. <math>\frac{1}{a} \times \frac{1}{b} = \frac{1}{ab}</math></p>
7	<p>a) <math>\frac{1}{6}</math></p> <p>b) <math>\frac{1}{8}</math></p> <p>c) <math>\frac{1}{5}</math></p>
8	<p>a) <math>\frac{1}{5}</math></p> <p>b) <math>\frac{1}{25}</math></p> <p>c) <math>\frac{1}{4}</math></p>

**Y8 – Autumn– Block 3 – ANS4 – Find the product of a pair of any fractions**

Question	Answer
1	<p>a) The square is split into 3 equal rows, 2 of these are indicated with an arrow showing <math>\frac{2}{3}</math></p> <p>The square is split into 5 equal columns, 3 of which are indicated with an arrow showing <math>\frac{3}{5}</math></p> <p>These bits are shaded and 8 out of 15 equal parts are shaded.</p>  <p>b)</p>
2	<p>a) <math>\frac{6}{15}</math> (or <math>\frac{2}{5}</math>)</p> <p>b) <math>\frac{3}{4} \times \frac{3}{4} = \frac{9}{16}</math></p> <p>c) <math>\frac{4}{5} \times \frac{5}{7} = \frac{20}{35}</math> (or <math>\frac{4}{7}</math>)</p>
3	
4	<p>a) <math>\frac{3}{8}</math></p> <p>b) <math>\frac{8}{21}</math></p> <p>c) <math>\frac{10}{24}</math> (or <math>\frac{5}{12}</math>)</p> <p>d) <math>\frac{5}{18}</math></p> <p>e) <math>\frac{9}{16}</math></p> <p>f) <math>\frac{4}{5} \times \frac{4}{5} = \frac{16}{25}</math></p> <p>g) <math>\frac{3}{10} \times \frac{3}{10} = \frac{9}{100}</math></p> <p>h) <math>\frac{4}{5}</math></p> <p>i) <math>\frac{1}{7}</math></p> <p>j) <math>\frac{7}{9}</math></p>
5	<p>E.g.</p> <p>a) <math>\frac{1}{2} \times \frac{5}{9}</math></p> <p>b) <math>\frac{2}{3} \times \frac{4}{5}</math></p> <p>c) <math>\frac{1}{2} \times \frac{1}{5}</math></p> <p>There are multiple ways to complete the calculations.</p>
6	<p>Yes Whitney is correct because when you multiply by a number less than one, the answer is smaller.</p>

Y8 – Autumn– Block 3 – ANS4 – Find the product of a pair of any fractions

Question	Answer
7	a) $\frac{1}{63}$ b) $\frac{1}{9}$ c) $\frac{2}{9}$ d) $\frac{2}{9}$ e) $\frac{3}{10}$ f) $\frac{3}{5}$ g) $\frac{1}{8}$ h) $\frac{4}{15}$  Students should discuss their method with a partner.

**Y8 – Autumn– Block 3 – ANS5 – Divide an integer by a fraction**

Question	Answer
1	a) There are 5 fifths in one whole. So $1 \div \frac{1}{5} = 5$ b) There are 3 thirds in one whole. So $1 \div \frac{1}{3} = 3$ and $2 \div \frac{1}{3} = 6$ c) 10 15 20
2	
3	a) 6 b) 9 c) 12 d) 12 e) 18 f) 24 g) 60 h) 90 i) 120 j) $4x$
4	a) There are 3 thirds in 1 whole and 12 thirds in 4 wholes. b) There are 6 lots of two-thirds in 4. Students should compare their reasoning with a partner.
5	a) 8 b) $30 \div 2 = 15$ c) $8 \div 5 = 16$ d) $5 \div 3 = 15$
6	Group 1: The answer is 2 $8 \times \frac{1}{4}$ $16 \times \frac{1}{8}$ $8 \div 4$ $16 \div 8$  Group 2: The answer is 32 $8 \div \frac{1}{4}$ $8 \times 4$ $16 \times 2$ $16 \div \frac{1}{2}$ $4 \div \frac{1}{8}$
7	a) 2 , 8 b) 1 , 16 c) $\frac{2}{3}$ , 24
8	a) 24 b) 48 c) 16 d) 20

**Y8 – Autumn– Block 3 – ANS6 – Divide a fraction by a unit fraction**

Question	Answer
1	a) 3 , 3 b) 2 , 2 c) 6 , 6
2	a) 2 b) 6 c) 4 d) 12 e) 30 f) 3 g) 6
3	a) 4 b) 8 c) 9
4	
5	< > < >
6	a) $\frac{6}{8} \div \frac{1}{8} = 6 \div 1 = 6$ b) $\frac{9}{12} \div \frac{1}{12} = 9 \div 1 = 9$ c) $\frac{15}{20} \div \frac{1}{20} = 15 \div 1 = 15$
7	a) $a = 5$ b) $b = 5$ c) $c = 18$ d) $d = 10$



Y8 – Autumn– Block 3 – ANS7 – Understand and use the reciprocal

Question	Answer
1	
2	No because $\frac{1}{3} < \frac{1}{2}$
3	a) 5 , 5 b) 10 , 10 c) 15 , 15 d) 20 , 20  Dividing by a fraction is the same as multiplying by its reciprocal.
4	a) 30 b) 35 c) 20 d) 32
5	a) $4 = 12$ b) $4 \div 3 = 4$ c) $8 = 24$ d) $8 \div 3 = 8$ e) 8 f) $13\frac{1}{2}$ g) 5 h) $2\frac{1}{2}$  Tommy has found how many lots of $\frac{1}{3}$ there are in 4 which is 12. He has then used the fact that there are two lots of $\frac{1}{3}$ in $\frac{2}{3}$ which means there are half as many lots of $\frac{2}{3}$ in 4 than there are $\frac{1}{3}$ so he has divided 12 by 2 to give that there are 6 lots of two thirds in 4.
6	$2\frac{1}{2}$ Students should discuss their answer with a partner.
7	a) 9 b) $4\frac{1}{2}$ c) $1\frac{1}{2}$ d) $\frac{3}{4}$ e) 9 f) $4\frac{1}{2}$  You could knowledge of fraction and decimal equivalents. 0.5 is equivalent to $\frac{1}{2}$ and 0.125 is equivalent to $\frac{1}{8}$ so $0.5 \div 0.125$ is equivalent to $\frac{1}{2} \div \frac{1}{8}$ which is 4.

**Y8 – Autumn – Block 3 – ANS8 – Divide any pair of fractions**

Question	Answer
1	a) 18 b) 24
2	a) 4 b) $\frac{1}{4}$ c) $\frac{50}{3}$ ( $= 16\frac{2}{3}$ ) d) $\frac{3}{50}$ e) $\frac{4}{5}$ f) $\frac{5}{4}$ ( $= 1\frac{1}{4}$ ) g) $\frac{11}{12}$ h) $\frac{12}{11}$ ( $= 1\frac{1}{11}$ )
3	a) 4 b) $\frac{1}{4}$ c) $\frac{50}{3}$ ( $= 16\frac{2}{3}$ ) d) $\frac{3}{50}$ e) $\frac{4}{5}$ f) $\frac{5}{4}$ ( $= 1\frac{1}{4}$ ) g) $\frac{11}{12}$ h) $\frac{12}{11}$ ( $= 1\frac{1}{11}$ )
4	Students should discuss their preferred method with a partner.
5	a) 15 b) 15
6	a) $\frac{3}{4} \div \frac{1}{4} = 3$ b) $\frac{1}{2} \div \frac{1}{8} = 4$ c) $\frac{3}{5} \div \frac{1}{4} = \frac{12}{5}$ ( $= 2\frac{2}{5}$ ) d) $\frac{9}{10} \div \frac{1}{4} = \frac{18}{5}$ ( $= 3\frac{3}{5}$ )
7	a) $\frac{3}{4} \div \frac{2}{3}$ $\frac{3}{4} \times \frac{2}{3}$ $\frac{3}{4} \times \frac{3}{2}$ b) $\frac{4}{5} \div \frac{1}{3}$ $\frac{1}{3} \div \frac{4}{5}$ $\frac{5}{4} \times \frac{1}{3}$ c) $\frac{5}{8} \times \frac{2}{3}$ $\frac{2}{3} \times \frac{5}{8}$ $\frac{2}{3} \div \frac{5}{8}$ $\frac{5}{8} \div \frac{3}{2}$
8	a) $\frac{3}{8}$ b) $\frac{2}{3}$ c) $\frac{3}{5}$ d) $\frac{15}{16}$ e) $\frac{3}{10}$ f) $\frac{15}{32}$



Y8 - Autumn - Block 3 - ANS10 - Multiply and divide algebraic fractions

Question	Answer
1	a) $\frac{7}{2}$ b) $\frac{x}{2}$ c) $\frac{7}{2}$ d) Students should discuss their preferred method with a partner.
2	
3	a) $1\frac{1}{2}$ , $1\frac{1}{2}$ b) $2\frac{1}{4}$ , $2\frac{1}{4}$ c) $7\frac{1}{2}$ , $7\frac{1}{2}$ Teddy is correct. This can be seen by the fact that the two answers are equal in each part. $\frac{3}{4}x$ and $\frac{3x}{4}$ are equivalent.
4	a) $\frac{x}{3}$ b) $\frac{4y}{5}$ c) $\frac{3z}{5}$ d) $\frac{x}{6}$ e) $\frac{2y}{15}$ f) $\frac{6z}{5}$
5	a) $\frac{2a}{5}$ $a \times 2 \div 5$ $\frac{a \times 2}{5}$ $a + 2 \times 5$ b) $\frac{2a}{3}$ $a \times \frac{2}{3}$ $a + 2 \times 3$ $a + 3 \times 2$
6	a) $\frac{w}{14}$ b) $\frac{3}{2w}$ c) $\frac{3}{w^2}$ d) $\frac{1}{10}$
7	a) $\frac{ab}{15}$ b) $\frac{3a}{5b}$ c) $\frac{3a}{5b}$ d) $\frac{ab}{15}$ e) $\frac{ab}{8}$ f) $\frac{a}{2b}$