



Multiplying fractions and integers

Year 7 About 75 minutes No calculator 46 marks

Date _____

A Do Now

Quick questions to start.

- A1** Last lesson [1 mark]

Work out $2\frac{3}{4} + 1\frac{2}{3}$.

A2 Needed today [1 mark]

Write $\frac{23}{6}$ as a mixed number.

Answer

Answer

- A3** Needed today [1 mark]

Work out $\frac{1}{5}$ of 35.

A4 From chapter 4 [1 mark]

Work out 25% of 48.

Answer

Answer

B Example, then your turn

Year 7

Your teacher works through each example with you. Then try the one beside it.

EXAMPLE 1

Work out (a) $\frac{3}{5}$ of 20 (b) $\frac{2}{3} \times 7$.

Hint "Of" means times. To multiply a fraction by a whole number, multiply the top and keep the bottom.

- B1** Work out each one. Give fractions as mixed numbers. [3 marks]

(a) $\frac{4}{9}$ of 27

(b) $\frac{5}{6} \times 4$

(c) $9 \times \frac{3}{4}$

Answer (a) ... (b) ... (c) ...

EXAMPLE 2

Work out $2\frac{3}{5} \times 4$ in two ways.

Hint Either change $2\frac{3}{5}$ to an improper fraction, or multiply the 2 and the $\frac{3}{5}$ separately.

- B2** Work out each one. [2 marks]

(a) $3\frac{2}{7} \times 3$

(b) $5 \times 1\frac{5}{6}$

Answer (a) (b)

EXAMPLE 3

Work out $10 \times 2\frac{7}{15}$.

Hint $2\frac{7}{15} = \frac{37}{15}$. The 10 and the 15 share a factor of 5: divide both by 5 before you multiply.

B3 Work out each one. Cancel first if you can. [2 marks]

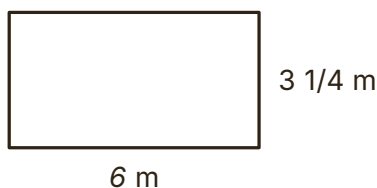
(a) $12 \times 3\frac{5}{8}$

(b) $2\frac{4}{9} \times 6$

Answer (a) (b)

EXAMPLE 4

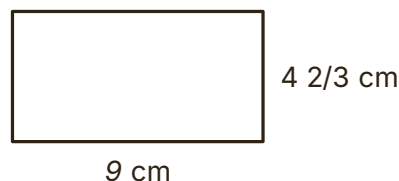
Work out the area of this rectangle.



Not drawn accurately

Hint Area = length $\times$ width. Multiply the whole number part and the fraction part by 6.

B4 For this rectangle, work out (a) its area, (b) its perimeter. [3 marks]



Not drawn accurately

Answer (a) (b)

c Practice

Year 7

C1 $16\frac{2}{3}\% = \frac{1}{6}$. Use this to work out [2 marks]
(a) $16\frac{2}{3}\%$ of 42, (b) $83\frac{1}{3}\%$ of 42.

Answer (a) (b)

C2 $3\frac{1}{4} \times 5 = 16\frac{1}{4}$. Use this to work [2 marks]
out (a) $3\frac{1}{4} \times 15$, (b) $6\frac{1}{2} \times 10$.

Answer (a) (b)

C3 Show that $\frac{3}{8} \times 5$ and $\frac{5}{8} \times 3$ have [2 marks]
the same value.

C4 Find each missing number. [2 marks]

(a) $\square \times \frac{3}{4} = 6$

(b) $\frac{2}{5} \times \square = 6$

Answer (a) (b)

- C5** One batch of flapjack needs $\frac{2}{3}$ of [2 marks]
a cup of oats. How many cups of
oats are needed for 8 batches?

Answer cups

D Exam-style questions

GCSE Foundation

- D1** Ben says, " $3 \times \frac{2}{7} = \frac{6}{21}$." [2 marks]

Ben is wrong. Explain his mistake and give the correct answer.

- D2** A tin holds $3\frac{3}{4}$ litres of paint. Jo buys 6 tins.

- (a) How many litres of paint does Jo buy? [2 marks]

Answer litres

- (b) She uses $18\frac{2}{3}$ litres. How much paint is left? [2 marks]

Answer litres

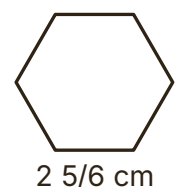
- (c) One tin covers $13\frac{1}{3}$ m² of wall. What area can all 6 tins cover? [2 marks]

Answer m²

Total for D2: 6 marks

- D3** A regular hexagon has sides of $2\frac{5}{6}$ cm. Work out its perimeter. [2 marks]

Answer cm



Not drawn
accurately

D4 A coat costs £96. In a sale, all prices are cut by $37\frac{1}{2}\%$.

- (a) Work out the sale price of the coat. ($37\frac{1}{2}\% = \frac{3}{8}$.)

[3 marks]

Answer £.....

- (b) Later the sale price is cut by a further $16\frac{2}{3}\%$. Work out the new price.

[2 marks]

Answer £.....

Total for D4: 5 marks

D5 Put these in order of size, smallest first.

[3 marks]

$$\frac{3}{8} \times 16 \quad 5 \times 1\frac{1}{4} \quad \frac{2}{3} \times 8 \quad 1\frac{3}{5} \times 4$$

Answer,,,

E Extension

Stretch

No route is given. The hints are at the end of the sheet. Use one at a time.

- E1** $\frac{3}{k}$ is a fraction in its simplest form, and k is a whole number bigger than 3.
 $\frac{3}{k} \times 20$ is a whole number. Find all the possible values of k .

[4 marks]

Answer $k = \dots\dots$

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** $\frac{3}{k} \times 20 = \frac{60}{k}$.
Hint 2 So k must divide 60 exactly. List the factors of 60 bigger than 3.
Hint 3 In its simplest form, 3 and k share no factor. Cross out the multiples of 3.

How did it go?

Colour one circle on each line: not yet, nearly, yes.

I can multiply a fraction by a whole number.



I can multiply a mixed number by a whole number, cancelling first when I can.



I can use fractions to find areas, amounts and percentages.

