



Dividing with integers and fractions

Year 7 About 75 minutes No calculator 46 marks

Date _____

A Do Now

Quick questions to start.

- A1** Last lesson [1 mark]

Work out $\frac{5}{6} \times 9$.

A2 Needed today [1 mark]

Write $3\frac{1}{4}$ as an improper fraction.

Answer

Answer

- A3** Needed today [1 mark]

Write $\frac{6}{15}$ in its simplest form.

A4 From chapter 10 [1 mark]

Simplify $4p + 3q - p + 2q$.

Answer

Answer

B Example, then your turn

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

EXAMPLE 1

Work out (a) $\frac{2}{3} \div 4$ (b) $\frac{6}{7} \div 3$.

Hint Dividing by 4 means finding a quarter. That is the same as multiplying by $\frac{1}{4}$.

- B1** Work out each one. Simplify your answers. [3 marks]

(a) $\frac{3}{4} \div 5$

(b) $\frac{8}{9} \div 4$

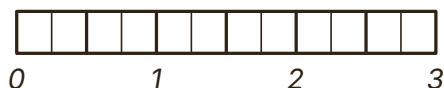
(c) $\frac{5}{6} \div 10$

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

EXAMPLE 2

How many quarters are there in 3? Work out

$$3 \div \frac{1}{4}.$$



Hint There are 4 quarters in each whole. Dividing by $\frac{1}{4}$ is the same as multiplying by 4.

B2 Work out each one.

[2 marks]

(a) $5 \div \frac{1}{3}$

(b) $7 \div \frac{1}{6}$

Answer (a) (b)

EXAMPLE 3

Work out (a) $\frac{3}{5} \div \frac{1}{2}$ (b) $\frac{2}{9} \div \frac{1}{3}$.

Hint To divide by a fraction, multiply by its reciprocal. The reciprocal of $\frac{1}{2}$ is 2.

B3 Work out each one. Give answers bigger than 1 as mixed numbers.

[2 marks]

(a) $\frac{5}{12} \div \frac{1}{4}$

(b) $\frac{4}{7} \div \frac{1}{5}$

Answer (a) (b)

EXAMPLE 4

Work out (a) $3\frac{1}{3} \div 5$ (b) $1\frac{3}{4} \div \frac{1}{2}$.

Hint Change the mixed number to an improper fraction first.

B4 Work out each one.

[2 marks]

(a) $4\frac{1}{2} \div 6$

(b) $2\frac{2}{5} \div \frac{1}{3}$

Answer (a) (b)

c Practice

Year 7

C1 Find each missing number.

[2 marks]

(a) $6 \div \square = 30$

(b) $\square \div \frac{1}{4} = 22$

Answer (a) (b)

C2

A jug holds $2\frac{2}{3}$ litres of juice.

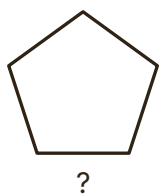
[2 marks]

How many glasses holding $\frac{1}{6}$ litre each can be filled from the jug?

Answer glasses

- C3** A regular pentagon has a perimeter of $7\frac{1}{2}$ cm. Work out the length of one side.

[2 marks]



Not drawn accurately

- C4** Solve each equation.

[2 marks]

(a) $4x = 2\frac{2}{3}$

(b) $5y = \frac{3}{4}$

Answer (a) $x = \dots$ (b) $y = \dots$

Answer cm

- C5** Work out (a) $\frac{1}{3} \div 6$, (b) $6 \div \frac{1}{3}$. Are they the same? [2 marks]

Answer (a) (b)

D Exam-style questions

GCSE Foundation

- D1** Mia says, " $\frac{1}{4} \div 2 = 8$."

[2 marks]

Mia is wrong. Explain her mistake and give the correct answer.

- D2** A baker has $6\frac{3}{4}$ kg of flour. Each loaf uses $\frac{1}{4}$ kg.

- (a) How many loaves can she make?

[2 marks]

Answer loaves

- (b) She shares $4\frac{1}{2}$ kg of butter equally into 6 tubs. How much butter goes in each tub?

[2 marks]

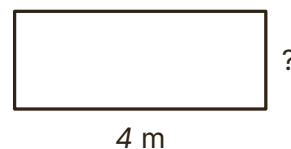
Answer kg

Total for D2: 4 marks

D3 This rectangle has an area of $5\frac{1}{3} \text{ m}^2$. Its length is 4 m.

(a) Work out its width.

[2 marks]



Answer m

Not drawn accurately

(b) Work out its perimeter.

[2 marks]

Answer m

Total for D3: 4 marks

D4 Tom has $3\frac{1}{2}$ litres of lemonade. He pours $\frac{1}{4}$ litre into each cup.

(a) How many cups can he fill?

[2 marks]

Answer cups

(b) He wants to fill 20 cups. How much more lemonade does he need?

[2 marks]

Answer litres

(c) Instead he shares his $3\frac{1}{2}$ litres equally between 20 cups. How much goes in each cup?

[2 marks]

Answer litre

Total for D4: 6 marks

D5 Sam says, " $6 \div \frac{1}{5} = 30$, and $\frac{2}{5}$ is double $\frac{1}{5}$, so $6 \div \frac{2}{5} = 60$."

[3 marks]

Is Sam right? Give a reason and work out $6 \div \frac{2}{5}$.

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

E1 a and b are whole numbers. $\frac{1}{a} \div \frac{1}{b} = 6$ and $a + b = 21$.

Find the two fractions $\frac{1}{a}$ and $\frac{1}{b}$.

[4 marks]

Answer $\frac{1}{a} = \dots$ $\frac{1}{b} = \dots$

Extension hints

Cover these with paper. Uncover one at a time.

- E1**

Hint 1

Hint 2

Hint 3

$\frac{1}{a} \div \frac{1}{b} = \frac{1}{a} \times b = \frac{b}{a}$.

So b is 6 times a .

Then $a + 6a = 21$.

How did it go?

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

- I can divide a fraction or a mixed number by a whole number.
- I can divide by a unit fraction by multiplying by its reciprocal.
- I can use division with fractions to solve problems.