



Adding and subtracting fractions

Year 7 About 75 minutes No calculator 47 marks

Date _____

A Do Now

Quick questions to start.

- A1** [From chapter 10] [1 mark] Write $2a \times 3a \times a$ using a power.
- A2** [Needed today] [1 mark] Find the lowest common multiple of 6 and 8.

Answer

Answer

- A3** [Needed today] [1 mark] Write $2\frac{3}{4}$ as an improper fraction.
- A4** [Needed today] [1 mark] Write $\frac{15}{20}$ in its simplest form.

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 $\frac{5}{6} + \frac{3}{8}$. Give your answer as a mixed number.

Hint The lowest common multiple of 6 and 8 is 24. Change both fractions to twenty-fourths.

- B1** Work out each one. Give your answers as simply as possible. [2 marks]

(a) $\frac{3}{4} + \frac{1}{10}$

(b) $\frac{7}{9} + \frac{5}{6}$

Answer (a) (b)

EXAMPLE 2

Work out $2\frac{3}{4} + 3\frac{5}{6}$.

Hint Add the whole numbers first. Then add the fractions, using twelfths.

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

(a) $3\frac{5}{8} + 1\frac{1}{6}$

(b) $2\frac{7}{10} + 1\frac{3}{4}$

Answer (a) (b)

EXAMPLE 3

Work out (a) $5\frac{1}{4} - 2\frac{2}{3}$ (b) $6 - 2\frac{3}{5}$.

Hint In (a), $\frac{3}{12}$ is smaller than $\frac{8}{12}$, so change one whole into $\frac{12}{12}$ first. Or change both to improper fractions.

B3 Work out each one. Give your answers as simply as possible. [2 marks]

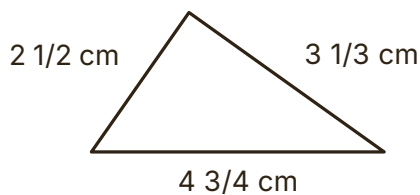
(a) $6\frac{1}{3} - 2\frac{5}{6}$

(b) $7 - 3\frac{3}{8}$

Answer (a) (b)

EXAMPLE 4

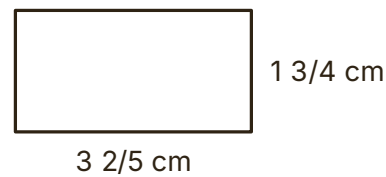
Work out the perimeter of this triangle.



Not drawn accurately

Hint Add the three sides. Whole numbers first, then the fractions in twelfths.

B4 Work out the perimeter of this rectangle. [3 marks]



Not drawn accurately

Answer cm

c Practice

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C1 Work out $\frac{1}{3} + \frac{1}{4} + \frac{5}{6}$. Give your answer as a mixed number. [2 marks]

Answer

C2 Find the missing number. [2 marks]

$$\frac{2}{3} + \square = 1\frac{1}{4}$$

Answer

C3 Work out each one. Give your answers as simply as possible. [2 marks]

(a) $4\frac{1}{6} - 1\frac{2}{3}$

(b) $8 - 3\frac{5}{9}$

Answer (a) (b)

C4 A ribbon is $5\frac{1}{3}$ m long. Pieces of $1\frac{3}{4}$ m and $2\frac{1}{6}$ m are cut off. How much ribbon is left? [3 marks]

Answer m

- C5** Which is bigger, $\frac{3}{4} + \frac{1}{5}$ or $\frac{2}{3} + \frac{3}{10}$? Show how you decide. [2 marks]

Answer

D Exam-style questions

GCSE Foundation

- D1** Tom says, " $\frac{2}{5} + \frac{1}{3} = \frac{3}{8}$." [2 marks]

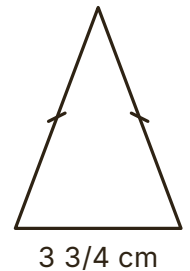
Tom is wrong. Explain his mistake and work out the correct answer.

- D2** Meg walks $2\frac{3}{4}$ km to the park, then $1\frac{2}{3}$ km to the shop, then home. She walks $6\frac{1}{2}$ km in total. How far is it from the shop to her home? [3 marks]

Answer km

- D3** This isosceles triangle has a perimeter of $12\frac{1}{4}$ cm. Its base is $3\frac{3}{4}$ cm.

- (a) Work out the length of one of the two equal sides. [3 marks]



Answer cm

- (b) The base is made $1\frac{1}{3}$ cm longer. The perimeter stays the same. Work out the new length of each equal side. [3 marks]

Not drawn accurately

Answer cm

Total for D3: 6 marks

D4 On a school day Sam spends $\frac{1}{3}$ of the day asleep, $\frac{1}{4}$ of the day at school and $\frac{1}{8}$ of the day eating.

(a) What fraction of the day is left?

[3 marks]

Answer

(b) A day has 24 hours. How many hours is this?

[1 mark]

Answer hours

Total for D4: 4 marks

D5 Two mixed numbers add up to $8\frac{1}{3}$. Their difference is $2\frac{1}{2}$. Work out the two numbers.

[4 marks]

Answer and

E Extension

Stretch

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

E1 A unit fraction has 1 on top, such as $\frac{1}{5}$.

[4 marks]

Find three different unit fractions that add up to 1. Explain why there is only one way to do it.

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** If none of the three is $\frac{1}{2}$, the biggest they can be is $\frac{1}{3} + \frac{1}{4} + \frac{1}{5}$. Is that enough?
- Hint 2** So one of them is $\frac{1}{2}$, and the other two add up to $\frac{1}{2}$. Try $\frac{1}{3}$ next.
- Hint 3** $\frac{1}{2} + \frac{1}{3} + \frac{1}{6} = 1$. With $\frac{1}{4}$ the third would also be $\frac{1}{4}$, which is not different.

How did it go?

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

- I can add and subtract fractions with different denominators. ☐ ☐ ☐
- I can add and subtract mixed numbers. ☐ ☐ ☐
- I can subtract when the fraction part is too small. ☐ ☐ ☐
- I can solve problems with fractions in words and shapes. ☐ ☐ ☐