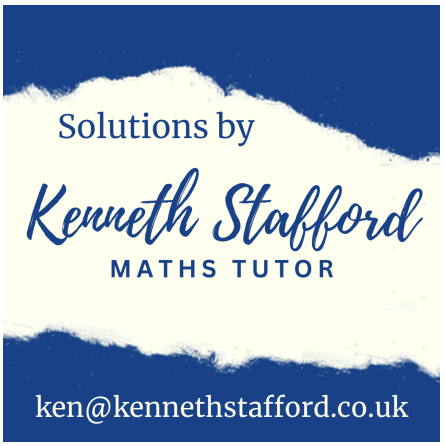
Name: SOLUTIONS

GCSE (1 - 9)

Operations with Fractions





These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The ***most current*** version of these worksheets will always be available at: kennethstafford.co.uk

Question	Where the question appeared	Question	Where the question appeared
1	Edexcel, GCSE, Summer 2017, Paper 1F, Q8	13	Edexcel, GCSE, Summer 2023, Paper 1F, Q21
2	Edexcel, GCSE, Autumn 2017, Paper 1F, Q22	14	Edexcel, GCSE, November 2022, Paper 1F, Q20
3	Edexcel, GCSE, Summer 2018, Paper 1F, Q19	15	Edexcel, GCSE, Summer 2022, Paper 1F, Q12
4	Edexcel, GCSE, Autumn 2018, Paper 1F, Q6	16	Edexcel, GCSE, Summer 2022, Paper 1F, Q20
5	Edexcel, GCSE, Autumn 2018, Paper 1F, Q11	17	Edexcel, GCSE, Summer 2022, Paper 2F, Q2
6	Edexcel, GCSE, Autumn 2018, Paper 3F, Q1		
7	Edexcel, GCSE, Summer 2019, Paper 1F, Q14		
8	Edexcel, GCSE, Summer 2019, Paper 1F, Q19		
9	Edexcel, GCSE, Autumn 2019, Paper 1F, Q22		
10	Edexcel, GCSE, Autumn 2019, Paper 2F, Q12		
11	Edexcel, GCSE, Autumn 2020, Paper 1F, Q21		
12	Edexcel, GCSE, Summer 2023, Paper 1F, Q15		

Operations with Fractions Questions from Past Papers

1

(a) Work out $\frac{5}{8} \times \frac{3}{4}$

$\frac{5 \times 3}{8 \times 4} = \frac{15}{32}$

(1)

(b) Work out $\frac{2}{3} - \frac{1}{4}$

$\frac{4 \times 2}{4 \times 3} - \frac{1 \times 3}{4 \times 3} = \frac{8}{12} - \frac{3}{12} = \frac{5}{12}$

(2)

(Total for Question 8 is 3 marks)

[Edexcel, GCSE, Summer 2017, Paper 1F, Q8]

2

(a) Work out $\frac{2}{5} + \frac{1}{4}$

$\frac{4 \times 2}{4 \times 5} + \frac{1 \times 5}{4 \times 5} = \frac{8}{20} + \frac{5}{20}$

$\frac{13}{20}$

(2)

(b) Write down the value of 2^{-3}

$2^{-3} = \frac{1}{2^3} = \frac{1}{8}$

(1)

(Total for Question 22 is 3 marks)

[Edexcel, GCSE, Autumn 2017, Paper 1F, Q22]

3

(a) Work out $2\frac{1}{7} + 1\frac{1}{4}$

$2 + 1 = 3$

$4 \times \frac{1}{7} + \frac{1}{4} \times 7 = \frac{4}{28} + \frac{7}{28} = \frac{11}{28}$

$3\frac{11}{28}$

(2)

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

Give your answer as a mixed number in its simplest form.

$\frac{6}{5} \times \frac{4}{3} = \frac{6 \times 4}{5 \times 3} = \frac{24}{15} = 1\frac{9}{15}$

$1\frac{3}{5}$

(2)

(Total for Question 19 is 4 marks)

[Edexcel, GCSE, Summer 2018, Paper 1F, Q19]

4

Sue has 2 cats.

Each cat eats $\frac{1}{4}$ of a tin of cat food each day.

Sue buys 8 tins of cat food.

Has Sue bought enough cat food to feed her 2 cats for 14 days?
You must show how you get your answer.

1 day = 2 x $\frac{1}{4}$ = $\frac{1}{2}$ a can per day

14 days = $\frac{1}{2}$ x 14 = 7 cans for 14 days

Yes. She needs 7 cans and has 8 cans.

(Total for Question 6 is 3 marks)

[Edexcel, GCSE, Autumn 2018, Paper 1F, Q6]

5

Here are some fractions.

$\frac{9}{12}$ $\frac{6}{8}$ $\frac{18}{24}$ $\frac{10}{16}$ $\frac{15}{20}$

One of these fractions is **not** equivalent to $\frac{3}{4}$

(a) Which fraction?

$\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{12}{16} = \frac{15}{20} = \frac{18}{24}$

$\frac{10}{16}$

.....

(1)

(b) Work out $\frac{1}{12} + \frac{5}{6}$

$\frac{1}{12} + \frac{5 \times 2}{6 \times 2} = \frac{1}{12} + \frac{10}{12}$

$= \frac{11}{12}$

.....

(2)

(Total for Question 11 is 3 marks)

[Edexcel, GCSE, Autumn 2018, Paper 1F, Q11]

6

Write a number in each box to make the calculation correct.

(i) 56.3 + [43.7] = 100

100 − 56.3 = 43.7

(1)

(ii) $\frac{2}{7}$ + [$\frac{5}{7}$] = 1

$1 - \frac{2}{7} = \frac{5}{7}$

(1)

(Total for Question 1 is 2 marks)

[Edexcel, GCSE, Autumn 2018, Paper 3F, Q1]

7

(a) Work out $\frac{1}{5}$ of 70

70 ÷ 5 = 14

(1)

Fiona has to work out the exact value of $48 \div \frac{1}{2}$

She writes

$$48 \div \frac{1}{2} = 24$$

Fiona's reason is,

"There are 2 halves in 1, so there will be 24 halves in 48"

(b) Explain what is wrong with Fiona's reason.

$48 \div \frac{1}{2} = 48 \times 2 = 96.$

There are 2 halves in 1, so there will be 96 halves in 48.

(1)

(Total for Question 14 is 2 marks)

[Edexcel, GCSE, Summer 2019, Paper 1F, Q14]

8

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

$5 \times \frac{2}{5 \times 3} - \frac{1 \times 3}{5 \times 3} = \frac{10}{15} - \frac{3}{15} =$

$\frac{7}{15}$

(2)

(b) Work out $\frac{2}{3} \times \frac{3}{4}$

Give your answer as a fraction in its simplest form.

$\frac{2}{3} \times \frac{3}{4} = \frac{2 \times 3}{3 \times 4} = \frac{6}{12} = \frac{1}{2}$

(2)

(Total for Question 19 is 4 marks)

[Edexcel, GCSE, Summer 2019, Paper 1F, Q19]

9

Work out $1\frac{3}{4} \times 1\frac{1}{3}$

Give your answer as a mixed number.

$\frac{7}{4} \times \frac{4}{3} = \frac{7 \times 4^{1}}{4 \times 3} = \frac{7 \times 1}{1 \times 3} = \frac{7}{3}$

$= 2\frac{1}{3}$

(Total for Question 22 is 3 marks)

[Edexcel, GCSE, Autumn 2019, Paper 1F, Q22]

10

Find the number that is exactly halfway between $\frac{1}{10}$ and $\frac{3}{5}$

$\frac{1}{10} + \frac{3}{5} = \frac{35}{50}$

$\frac{35}{50} \div 2 = \frac{35}{100} = \frac{7}{20}$

(Total for Question 12 is 2 marks)

[Edexcel, GCSE, Autumn 2019, Paper 2F, Q12]

11

Show that $2\frac{1}{3} \times 3\frac{3}{4} = 8\frac{3}{4}$

$\frac{7}{3} \times \frac{15}{4} = \frac{105}{12} = \frac{35}{4} = 8\frac{3}{4}$ (÷3, ÷3)

(Total for Question 21 is 3 marks)

[Edexcel, GCSE, Autumn 2020, Paper 1F, Q21]

12

Work out $\frac{6}{7} \times \frac{5}{12}$

Give your answer as a fraction in its simplest form.

$\frac{6 \times 5}{7 \times 12} = \frac{30}{84} = \frac{5}{14}$ (÷6, ÷6)

.....

(Total for Question 15 is 2 marks)

[Edexcel, GCSE, Summer 2023, Paper 1F, Q15]

13

Work out $7\frac{3}{8} - 2\frac{1}{2}$

Give your answer as a mixed number.

$\frac{59}{8} - \frac{5}{2} = \frac{59}{8} - \frac{20}{8} = \frac{39}{8} = 4\frac{7}{8}$

$4\frac{7}{8}$

(Total for Question 21 is 3 marks)

[Edexcel, GCSE, Summer 2023, Paper 1F, Q21]

14

(a) Work out $1\frac{3}{5} + 2\frac{1}{4}$

Give your answer as a mixed number.

$\frac{8}{5} + \frac{9}{4} = \frac{32}{20} + \frac{45}{20} = \frac{77}{20} = 3\frac{17}{20}$

$3\frac{17}{20}$

.....

(2)

(b) Show that $2\frac{2}{3} \div 6 = \frac{4}{9}$

$\frac{8}{3} \times \frac{1}{6} = \frac{8}{18} = \frac{4}{9}$ (÷2, ÷2)

(2)

(Total for Question 20 is 4 marks)

[Edexcel, GCSE, November 2022, Paper 1F, Q20]

15

(a) Work out $\frac{5}{12} + \frac{1}{6}$ $= \frac{5}{12} + \frac{2}{12} = \frac{7}{12}$

$\frac{7}{12}$

(2)

(b) Work out $\frac{3}{10} \times \frac{5}{8}$

Give your answer as a fraction in its simplest form.

$\frac{3 \times 5}{10 \times 8} = \frac{15}{80} = \frac{3}{16}$ (÷5, ÷5)

$\frac{3}{16}$

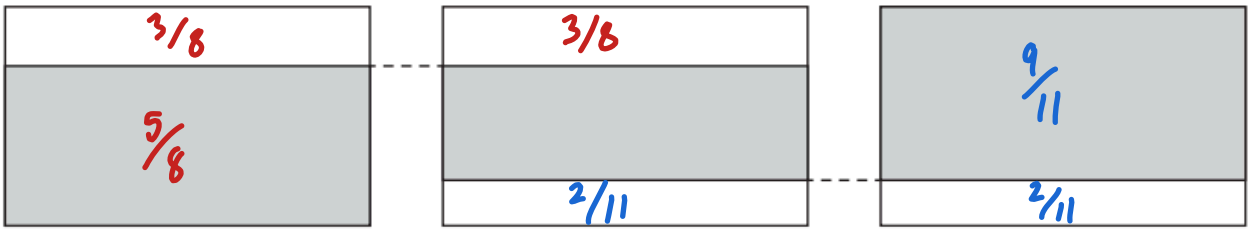
(2)

(Total for Question 12 is 4 marks)

[Edexcel, GCSE, Summer 2022, Paper 1F, Q12]

16

The diagram shows three identical rectangles **A**, **B** and **C**.



Rectangle **A** Rectangle **B** Rectangle **C**

$\frac{5}{8}$ of rectangle **A** is shaded. $\frac{3}{8}$ not shaded

$\frac{9}{11}$ of rectangle **C** is shaded. $\frac{2}{11}$ not shaded

Work out the fraction of rectangle **B** that is shaded.

$$\frac{3}{8} + \frac{2}{11} = \frac{33}{88} + \frac{16}{88} = \frac{49}{88}$$

$$\frac{88}{88} - \frac{49}{89} = \frac{39}{88}$$

.....

(Total for Question 20 is 3 marks)

[Edexcel, GCSE, Summer 2022, Paper 1F, Q20]

17

Write a fraction in the box to make the calculation correct.

$1 - \frac{3}{10} =$ $\frac{7}{10}$

(Total for Question 2 is 1 mark)

$\frac{10}{10} - \frac{3}{10} = \frac{7}{10}$

[Edexcel, GCSE, Summer 2022, Paper 2F, Q2]