Name: SOLUTIONS

GCSE (1 - 9)

Fraction of an Amount

Buy me a coffee

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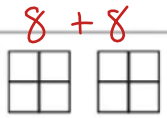
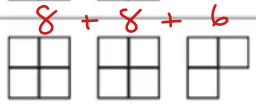
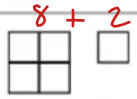
These questions are compiled from *released* Pearson Edexcel GCSE maths exam papers
They contain exam questions from up until the ***Summer 2023*** exam series
More recent exam papers do exist but are withheld for mock exams
As new exam papers are released these worksheets will gradually be updated
The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

Qu	Paper where the question appeared	Qu	Paper where the question appeared
1	Edexcel, GCSE, Autumn 2021, Paper 1F, Q11	16	Edexcel, GCSE, Autumn 2017, Paper 3F, Q10
2	Edexcel, GCSE, Autumn 2021, Paper 2F, Q19	17	Edexcel, GCSE, Summer 2017, Paper 1F, Q9
3	Edexcel, GCSE, Autumn 2021, Paper 3F, Q4	18	Edexcel, GCSE, Summer 2017, Paper 2F, Q6
4	Edexcel, GCSE, Autumn 2021, Paper 3F, Q14	19	Edexcel, GCSE, Summer 2017, Paper 2F, Q18
5	Edexcel, GCSE, Autumn 2020, Paper 1F, Q10	20	Edexcel, GCSE, Summer 2017, Paper 3F, Q4
6	Edexcel, GCSE, Autumn 2020, Paper 1F, Q17	21	Edexcel, GCSE, Summer 2017, Paper 3F, Q18
7	Edexcel, GCSE, Autumn 2020, Paper 2F, Q16	22	Edexcel, GCSE, Summer 2022, Paper 1F, Q25
8	Edexcel, GCSE, Autumn 2020, Paper 3F, Q2	23	Edexcel, GCSE, Summer 2023, Paper 2F, Q13
9	Edexcel, GCSE, Autumn 2019, Paper 3F, Q2	24	Edexcel, GCSE, November 2022, Paper 2F, Q12
10	Edexcel, GCSE, Autumn 2019, Paper 3F, Q11	25	Edexcel, GCSE, Summer 2022, Paper 3F, Q2
11	Edexcel, GCSE, Summer 2019, Paper 1F, Q14		
12	Edexcel, GCSE, Summer 2019, Paper 3F, Q8		
13	Edexcel, GCSE, Summer 2019, Paper 3F, Q23		
14	Edexcel, GCSE, Autumn 2018, Paper 3F, Q4		
15	Edexcel, GCSE, Summer 2018, Paper 3F, Q16		

Fraction of an Amount (Questions from Past Papers)

1

The pictogram shows information about the number of video games sold in a shop on Monday, on Tuesday and on Wednesday.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:  represents 8 video games

(a) How many video games were sold on Monday?

16

(1)

More video games were sold on Tuesday than on Wednesday.

(b) How many more?

22 − 10 = 12

(2)

On Thursday and Friday, a total of 32 video games were sold in the shop.

$\frac{1}{4}$ of these 32 video games were sold in the shop on Thursday.

(c) Complete the pictogram for Thursday and Friday.

Thursday $\frac{1}{4}$ of 32 = 32 ÷ 4 = 8

Friday $\frac{3}{4}$ of 32 = 8 × 3 = 24

(3)

(Total for Question 11 is 6 marks)

[Edexcel, GCSE, Autumn 2021, Paper 1F, Q11]

2

Rachel, Samina and Tom share £600 between them.

Rachel gets $\frac{2}{5}$ of the £600

Samina gets $\frac{1}{4}$ of the money that is left over.

Tom gets the rest of the money.

Tom says,

"I would have got more money if we had shared the £600 equally between us."

600 ÷ 3 = 200

Is Tom correct?
You must show how you get your answer.

Rachel: $\frac{2}{5}$ of 600 = 600 ÷ 5 = 120
120 × 2 = £240

Left over: 600 - 240 = £360

Samina: $\frac{1}{4}$ of 360 = 360 ÷ 4 = £90

Tom: 360 - 90 = £270.

Tom is wrong.

270 > 200

(Total for Question 19 is 4 marks)

[Edexcel, GCSE, Autumn 2021, Paper 2F, Q19]

3

Work out $\frac{1}{6}$ of 66

66 ÷ 6 = 11

.....

(Total for Question 4 is 1 mark)

[Edexcel, GCSE, Autumn 2021, Paper 3F, Q4]

4

A stadium cost £600 million.

$\frac{13}{15}$ of this cost was for the building.

The rest of the cost was for the land. $\frac{2}{15}$ Land

Work out the cost of the land.

$\frac{2}{15}$ of 600 = 600 ÷ 15 = 40

40 × 2 = 80

£ 80 million

(Total for Question 14 is 3 marks)

[Edexcel, GCSE, Autumn 2021, Paper 3F, Q14]

5

Jenny has 12 marbles.

$\frac{1}{4}$ of these 12 marbles are large.

The rest of these 12 marbles are small.

$\frac{1}{4}$ of 12 = 12 ÷ 4 = (3)

Small = 12 − (3) = (9)

Each large marble has a weight of 70 grams.
Each small marble has a weight of 50 grams.

Work out the total weight of the 12 marbles.

Large = (3) × 70 = 210g

Small = (9) × 50 = 450g

Total = 660g

..... grams

(Total for Question 10 is 4 marks)

[Edexcel, GCSE, Autumn 2020, Paper 1F, Q10]

6

In a shop, a TV has a normal price of £500
The shop has a sale.

On Monday, the normal price of the TV is reduced by $\frac{1}{10}$ to give the sale price.

On Tuesday, the sale price of the TV is reduced by 20%

Chris wants to buy the TV.
He has £400 to spend on the TV.

Does Chris have enough money to buy the TV on Tuesday?
You must show how you get your answer.

Monday: 1/10 of 500 = 500 ÷ 10 = 50

500 − 50 = £450

Tuesday: 20% of 450 = 450 ÷ 5 = 90

450 − 90 = £360

Yes Chris has enough.

400 > 360

(Total for Question 17 is 5 marks)

[Edexcel, GCSE, Autumn 2020, Paper 1F, Q17]

7

An exam has two papers, Paper 1 and Paper 2

Paper 1 has 60 marks.
Paper 2 has 90 marks.

Total marks = 60 + 90 = 150

The pass mark is $\frac{2}{3}$ of the total number of marks.

$\frac{2}{3}$ of 150 = 100

Danielle gets 70% of the marks for Paper 1

How many of the marks for Paper 2 must Danielle get in order to get the pass mark?

Paper 1 70% of 60 = 0.7 × 60 = 42 marks.

Marks needed = 100 − 42 = 58

58

(Total for Question 16 is 4 marks)

[Edexcel, GCSE, Autumn 2020, Paper 2F, Q16]

8

Work out $\frac{1}{3}$ of 24

24 ÷ 3 = 8

(Total for Question 2 is 1 mark)

[Edexcel, GCSE, Autumn 2020, Paper 3F, Q2]

9

Find $\frac{1}{3}$ of 30

30 ÷ 3 = 10

(Total for Question 2 is 1 mark)

[Edexcel, GCSE, Autumn 2019, Paper 3F, Q2]

10

Dylan buys 13 bicycle lights for £7.50 each.
He pays with five £20 notes. 5 x 20 = 100

(a) How much change should Dylan get?

13 x 7·50 = 97.50

100 − 97.50 = £2.50

£ 2·50

(3)

The normal price of a bicycle is £120

In a sale, there is $\frac{1}{5}$ off the normal price of the bicycle.

(b) Work out the price of the bicycle in the sale.

1/5 of 120 = 120 ÷ 5 = 24

120 − 24 = £ 96

(2)

(Total for Question 11 is 5 marks)

[Edexcel, GCSE, Autumn 2019, Paper 3F, Q11]

11

(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 ÷ ½ = 48 × 2 = 96

.....

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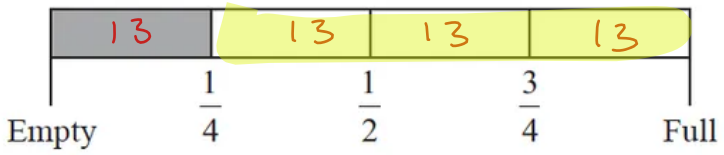
(1)

(Total for Question 14 is 2 marks)

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

12

Here is the gauge for the fuel tank of a car.



The fuel tank holds 52 litres of fuel when the tank is full.

52 ÷ 4 = 13

The tank is $\frac{1}{4}$ full of fuel.

Work out how many more litres of fuel are needed to fill the tank.

13 × 3 = 39 ..... litres

(Total for Question 8 is 3 marks)

[Edexcel, GCSE, Summer 2019, Paper 3F, Q8]

13

Costcorp sells packets of mints to shop owners.

On Monday three shop owners buy mints from Costcorp.
Each shop owner buys small packets, medium packets and large packets of mints.

Alan buys 400 packets of mints.
32% are small packets.
40% are large packets.

Small = 32% of 400 = 128
Large = 40% of 400 = 160
medium = 28% of 400 = 112

Beryl buys 500 packets of mints.

$\frac{3}{10}$ are small packets.

$\frac{1}{10}$ are large packets.

Small = $\frac{3}{10}$ of 500 = 150
Large = $\frac{1}{10}$ of 500 = 50
medium = $\frac{6}{10}$ of 500 = 300

Charlie buys 150 small packets of mints so that

number of small packets : number of medium packets = 3 : 4

small	:	medium
3	:	4
150	:	200

Work out the total number of medium packets of mints these shop owners buy.
You must show all your working.

112 + 300 + 200 = 612

612

(Total for Question 23 is 5 marks)

[Edexcel, GCSE, Summer 2019, Paper 3F, Q23]

14

Work out $\frac{1}{8}$ of 720

720 ÷ 8 = 90

(Total for Question 4 is 1 mark)

[Edexcel, GCSE, Autumn 2018, Paper 3F, Q4]

15

Alan, Bispah and Chan share a sum of money.

Alan gets $\frac{1}{8}$ of the money. 1/8 = £2.50 Total = £2.50 × 8 = £20

Bispah gets $\frac{1}{2}$ of the money. 1/2 of 20 = £10

Chan gets the rest of the money. Chan = 20 − 10 − 2.50 = £7.50

Alan gets £2.50

(a) Work out how much money Bispah gets.

£ 10

(2)

(b) Find the ratio

amount of money Alan gets : amount of money Chan gets

Give your answer in the form $a : b$ where a and b are whole numbers.

A : C

2.50 : 7.50

1 : 3

1 : 3

(3)

(Total for Question 16 is 5 marks)

[Edexcel, GCSE, Summer 2018, Paper 3F, Q16]

16

Jim thinks of a number.

$\frac{2}{3}$ of Jim's number is 48

Work out $\frac{5}{6}$ of Jim's number.

$\frac{2}{3} = 48$ $\frac{1}{3} = 24$ $\frac{3}{3} = 72$

$\frac{5}{6}$ of $72 = 72 \div 6 = 12$

$12 \times 5 = 60$

60

(Total for Question 10 is 2 marks)

[Edexcel, GCSE, Autumn 2017, Paper 3F, Q10]

17

Sean works for a company.
His normal rate of pay is £12 per hour.

When Sean works more than 8 hours a day, he is paid overtime for each hour he works more than 8 hours.

Sean's rate of overtime pay per hour is $1\frac{1}{4}$ times his normal rate of pay per hour.

$1\frac{1}{4}$ of 12 = 15

On Monday Sean worked for 10 hours.

Work out the total amount of money Sean earned on Monday.

$8 \times 12 = £96$

$2 \times 15 = £30$

$96 + 30 =$ £ 126

(Total for Question 9 is 4 marks)

[Edexcel, GCSE, Summer 2017, Paper 1F, Q9]

18

There are 495 coins in a bottle.

$\frac{1}{3}$ of the coins are £1 coins.

124 of the coins are 50p coins.

The rest of the coins are 20p coins.

Work out the total value of the 495 coins.

£1 $\frac{1}{3}$ of 495 = 495 ÷ 3 = £165

50p 124 × 50p = £62

20p 495 − 165 − 124 = 206 coins

206 × 0·2 = £41·20

165 + 62 + 41·20 = £268·20

£ 268·20

(Total for Question 6 is 4 marks)

[Edexcel, GCSE, Summer 2017, Paper 2F, Q6]

19

On Saturday, some adults and some children were in a theatre.
The ratio of the number of adults to the number of children was 5 : 2 = 2.5 : 1

Each person had a seat in the Circle or had a seat in the Stalls.

$\frac{3}{4}$ of the children had seats in the Stalls.
117 children had seats in the Circle.

There are exactly 2600 seats in the theatre.

On this Saturday, were there people on more than 60% of the seats?
You must show how you get your answer.

Children

3/4 Stalls: 351 + 1/4 Circle: 117 = Total: 468

(117 × 3 = 351)

468 × 2.5 = 1170

Adults

In Theatre = 1170 + 468 = 1638

60% of 2600 = 1560

Yes

1638 > 1560

(Total for Question 18 is 5 marks)

[Edexcel, GCSE, Summer 2017, Paper 2F, Q18]

20

$\frac{4}{5}$ of a number is 32

Find the number.

$\frac{4}{5} = 32$ $\quad \frac{1}{5} = 8$ $\quad \frac{5}{5} = 40$

40

(Total for Question 4 is 2 marks)

[Edexcel, GCSE, Summer 2017, Paper 3F, Q4]

21

Daniel bakes 420 cakes.
He bakes only vanilla cakes, banana cakes, lemon cakes and chocolate cakes.

$\frac{2}{7}$ of the cakes are vanilla cakes.

35% of the cakes are banana cakes.

The ratio of the number of lemon cakes to the number of chocolate cakes is 4 : 5

Work out the number of lemon cakes Daniel bakes.

Vanilla = $\frac{2}{7}$ of 420 = 420 ÷ 7 = 60

60 × 2 = 120

Banana = 35% of 420 = 0·35 × 420 = 147

Lemon and Chocolate = 420 − (120 + 147) = 153

Lemon : Chocolate

4 : 5 (9 parts)

145 ÷ 9 = 17

17 × 4 = 68

(Total for Question 18 is 5 marks)

[Edexcel, GCSE, Summer 2017, Paper 3F, Q18]

22

A delivery company has a total of 160 cars and vans.

the number of cars : the number of vans = 3 : 7 (10)

Each car and each van uses electricity or diesel or petrol.

$\frac{1}{8}$ of the cars use electricity.

25% of the cars use diesel.

The rest of the cars use petrol.

Work out the number of cars that use petrol.
You must show all your working.

10 parts = 160
1 part = 16
Cars = 3 parts = 48
Vans = 7 parts = 112

Electric = $\frac{1}{8}$ of 48 = 48 ÷ 8 = 6

Diesel = 25% of 48 = 48 ÷ 4 = 12

Petrol = 48 − (6 + 12) = 30

30

(Total for Question 3 is 5 marks)

[Edexcel, GCSE, Summer 2022, Paper 1F, Q25]

23

There are 50 teachers in a school.

This is $\frac{1}{16}$ of the total number of people in the school.

Work out the total number of people in the school.

$50 \times 16 = 800$

800

(Total for Question 13 is 2 marks)

[Edexcel, GCSE, Summer 2023, Paper 2F, Q13]

24

(a) Work out $\frac{5}{8}$ of 132

$132 \div 8 = 16.5$

$16.5 \times 5 = 82.5$

82.5

(2)

(b) Write the following fractions in order of size.
Start with the smallest fraction.

$\frac{3}{8}$ $\frac{9}{32}$ $\frac{1}{4}$ $\frac{21}{64}$

0.375 0.281 0.250 0.328

$\frac{1}{4}$ $\frac{9}{32}$ $\frac{21}{64}$ $\frac{3}{8}$

(2)

(Total for Question 12 is 4 marks)

[Edexcel, GCSE, November 2022, Paper 2F, Q12]

25

Work out $\frac{1}{4}$ of 28

$28 \div 4 = 7$

(Total for Question 2 is 1 mark)

[Edexcel, GCSE, Summer 2022, Paper 3F, Q2]