GCSE · Edexcel · Maths

2 hours 49 questions

Exam Questions

Fractions, Decimals & Percentages

Converting Fractions, Decimals & Percentages / Recurring Decimals / Ordering Fractions, Decimals & Percentages

Easy (14 questions)	/37
Medium (18 questions)	/59
Hard (17 questions)	/48
Total Marks	**/144**

Scan here to return to the course
or visit savemyexams.com

Easy Questions

1 Mr Mason asks 240 Year 11 students what they want to do next year. 15% of the students want to go to college.

$\frac{3}{4}$ of the students want to stay at school.

The rest of the students do not know.

Work out the number of students who do not know.

(4 marks)

2 Sasha takes a music exam.

The table shows the result that Sasha can get for different percentages in her music exam.

Percentage	Result
50% - 69%	Pass
70% - 84%	Merit
85% - 100%	Distinction

Sasha gets 62 out of 80 in her music exam.

What result does Sasha get?

You must show your working.

(3 marks)

3 Karen got 32 out of 80 in a maths test.
She got 38% in an English test.

Karen wants to know if she got a higher percentage in maths or in English.
Did Karen get a higher percentage in maths or in English?

(2 marks)

4 Celina and Zoe both sing in a band.

One evening the band plays for 80 minutes.
Celina sings for 65% of the 80 minutes.

Zoe sings for $\frac{5}{8}$ of the 80 minutes.
Celina sings for more minutes than Zoe sings.

Work out for how many more minutes.
You must show all your working.

(4 marks)

5 Prove algebraically that the recurring decimal $0.2\dot{5}$ has the value $\frac{23}{90}$

(2 marks)

6 Show that the recurring decimal $0.1\dot{7} = \frac{8}{45}$

(2 marks)

7 Use algebra to show that the recurring decimal $0.3\dot{8} = \frac{7}{18}$

(2 marks)

8 Use algebra to show that the recurring decimal $0.2\dot{6} = \frac{4}{15}$

(2 marks)

9 Use algebra to show that $4.\dot{5}\dot{7} = 4\frac{19}{33}$

(2 marks)

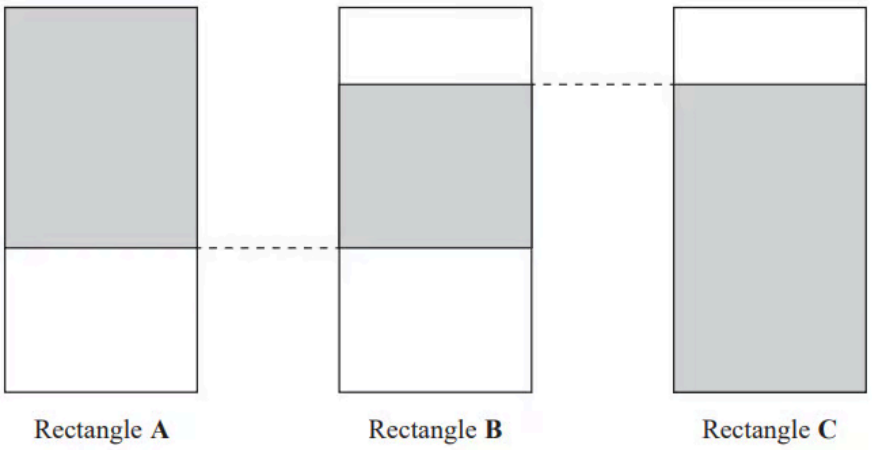
10 120 children go on an activity holiday.
The ratio of the number of girls to the number of boys is $3:5$. On Sunday, all the children either go sailing or go climbing. $\frac{16}{25}$ of the boys go climbing.

Twice as many girls go sailing as go climbing.

Work out how many children go sailing on Sunday.

(6 marks)

11 The diagram shows three identical rectangles.



$\frac{5}{8}$ of rectangle **A** is shaded.

80% of rectangle **C** is shaded.

What fraction of rectangle **B** is shaded?

(3 marks)

12 Choose the largest number.

A. $0.\dot{5}$

B. 0.55

C. 0.545

D. $0.5\dot{4}\dot{5}$

(1 mark)

13 (a) Write $\frac{1}{3}$ as a recurring decimal.

(1 mark)

(b) Write $\frac{1}{30}$ as a recurring decimal.

(1 mark)

14 Write $\frac{5}{6}$ as a recurring decimal.

(2 marks)

Medium Questions

1 Mr Brown and his 2 children are going to London by train.

An adult ticket costs £24
A child ticket costs £12

Mr Brown has a Family Railcard.

Family Railcard gives
$\frac{1}{3}$ off adult tickets
60% off child tickets

Work out the total cost of the tickets when Mr Brown uses his Family Railcard.

(4 marks)

2 Write these numbers in order of size. Start with the smallest number.

$0.24\dot{6}$	$0.2\dot{4}6$	$0.\dot{2}4\dot{6}$	0.246

(2 marks)

3 Prove that the recurring decimal $0.\dot{3}\dot{6} = \frac{4}{11}$

(3 marks)

4 Show that the recurring decimal $0.\dot{3}9\dot{6} = \frac{44}{111}$

(2 marks)

5 Use algebra to show that the recurring decimal $0.\dot{4}1\dot{7} = \frac{139}{333}$

(2 marks)

6 The people working for a company work in Team **A** or in Team **B**.

number of people in Team **A** : number of people in Team **B** = 3 : 4

$\frac{4}{5}$ of Team **A** work full time.

24% of Team **B** work full time.

Work out what fraction of the people working for the company work full time.
Give your fraction in its simplest form.

(3 marks)

7 Alex makes 80 cakes to sell. He makes chocolate cakes, lemon cakes and fruit cakes where

number of chocolate cakes	:	number of lemon cakes	:	number of fruit cakes	=	$3 : 2 : 5$

Alex sells

- all of the chocolate cakes
- $\frac{3}{4}$ of the lemon cakes
- $\frac{7}{8}$ of the fruit cakes

The profit he makes on each cake he sells is shown in the table.

Type of cake	**Profit per cake he sells**
chocolate	£2.00
lemon	£1.70
fruit	£2.40

Work out the total profit that Alex makes from the cakes he sells.

£.....

(5 marks)

8 Use algebra to show that the recurring decimal $0.2\dot{5}\dot{4} = \frac{14}{55}$

(2 marks)

9 Josh buys and sells books for a living.

He buys 120 books for £4 each.

He sells $\frac{1}{2}$ of the books for £5 each.

He sells 40% of the books for £7 each.
He sells the rest of the books for £8 each.

Calculate Josh's percentage profit.

(5 marks)

10 Ahmed, Behnaz and Carmen each have some money.
Ahmed has 20% more money than Behnaz.
Carmen has $\frac{7}{8}$ of the amount of money that Behnaz has.

Carmen has 31.50 euros.
Work out how much money Ahmed has.

.....euros

(3 marks)

11 Work out $0.704\dot{8}\dot{8} - 0.001$

A. $0.703\dot{8}\dot{8}$

B. $0.703\dot{8}$

C. $0.703\dot{8}\dot{3}$

D. $0.703\dot{8}\dot{4}$

(1 mark)

12 Convert $\frac{5}{6}$ to a recurring decimal.

(2 marks)

13 On a restaurant menu there are

22 main dishes, of which $\frac{4}{11}$ are gluten-free

7 rice dishes, which are all gluten-free

5 naan breads, of which 40% are gluten-free.

This Meal Deal is on the menu.

Choose one main dish, one rice dish and one naan bread

How many of the possible Meal Deals are totally gluten-free?

(3 marks)

14 (a) $0.\dot{7} = \frac{7}{9}$

Use this fact to show that $0.0\dot{7} = \frac{7}{90}$

(1 mark)

(b) Using part (a) or otherwise, convert $0.2\dot{7}$ to a fraction.

Give your answer in its simplest form.

(3 marks)

15 James is taking three examination papers in Spanish. Here are his first two results.

Paper 1: $\frac{43}{80}$ Paper 2: $\frac{38}{65}$

Paper 3 is out of 95.
The marks in each of the three papers are added together.

Find the lowest mark that James needs in Paper 3 to achieve 60% of the total marks.

(4 marks)

16 On a plane, $\frac{2}{5}$ of the passengers were British. 30% of the British passengers were men.

There were 36 British men on the plane. Find the total number of passengers on the plane.

(5 marks)

17 (a) **Without using a calculator**, show that $0.\dot{1}\dot{9}$ o can be written as $\frac{19}{99}$.

(3 marks)

(b) Explain how $\frac{19}{99} = 0.\dot{1}\dot{9}$ can be used to find $\frac{19}{990}$ as a decimal and write down its value.

$\frac{19}{990}$ = ...

(2 marks)

18 (a) Write $\frac{5}{12}$ as a recurring decimal.

(2 marks)

(b) Convert $0.\dot{7}\dot{6}$ to a fraction.

(2 marks)

Hard Questions

1 Express the recurring decimal $0.2\dot{8}\dot{1}$ as a fraction in its simplest form.

(3 marks)

2 $x = 0.0\dot{4}\dot{5}$

Prove algebraically that x can be written as $\frac{1}{22}$

(3 marks)

3 Using algebra, prove that $0.1\dot{3}\dot{6} \times 0.\dot{2}$ is equal in value to $\frac{1}{33}$

(3 marks)

4 $x = 0.4\dot{3}\dot{6}$

Prove algebraically that x can be written as $\frac{24}{55}$

(3 marks)

5 Prove algebraically that the recurring decimal $0.3\dot{1}\dot{8}$ can be written as $\frac{7}{22}$

(2 marks)

6 Show that the recurring decimal $0.0\dot{1}\dot{5} = \frac{1}{66}$

(2 marks)

7 Use algebra to show that the recurring decimal $0.28\dot{1}\dot{3} = \frac{557}{1980}$

(2 marks)

8 $0.4\dot{x}$ is a recurring decimal.

x is a whole number such that $1 \leqslant x \leqslant 9$

Find, in terms of x, the recurring decimal $0.4\dot{x}$ as a fraction.
Give your fraction in its simplest form.
Show clear algebraic working.

(3 marks)

9 Use algebra to show that $0.3\dot{2}\dot{4} = \frac{107}{330}$

(2 marks)

10 At a country park there is a house, a museum and a garden.

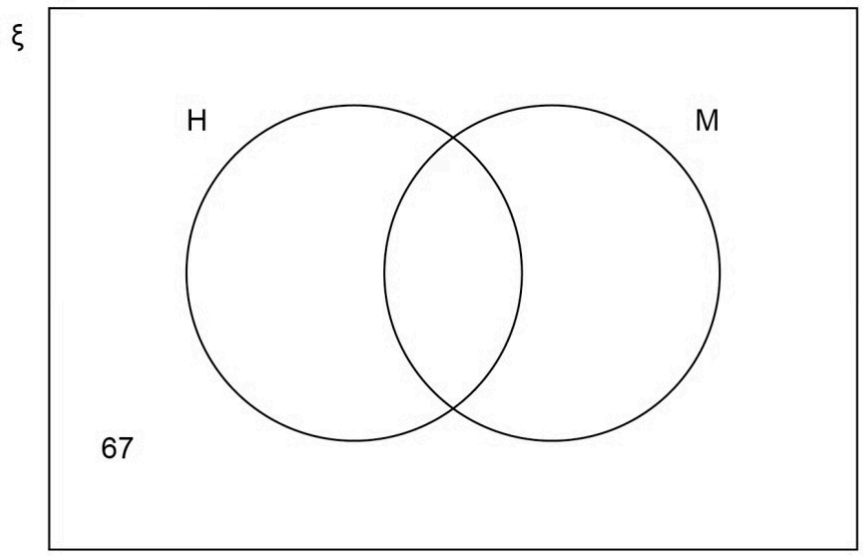
The table shows the prices per person to visit the park.

	Price per person
Garden only	Free
House and museum	£12.50
House only	£8
Museum only	£7

One day, 480 people visit the park.

67 visit the garden **only**.
40% visit the house **and** the museum.
$\frac{3}{8}$ visit the house **only**.
The rest visit the museum **only**.

In total, how much do the 480 people pay to visit the park?
You may use the Venn diagram to help you.



(5 marks)

11 Write these numbers in order of size.

15.6	$3\sqrt{23}$	2.1^4	$\frac{47}{3}$

Start with the smallest.

Smallest.....

Largest.....

(2 marks)

12 Prove algebraically that $2.7\dot{5}$ converts to the fraction $\frac{124}{45}$

(3 marks)

13 Convert $0.1\dot{7}\dot{2}$ to a fraction in its lowest terms.

(3 marks)

14 Elsa divides a two-digit number by another two-digit number. She gets the answer $0.1\dot{5}$

She says that there is only one possible pair of numbers that will give this answer. Is she correct? Show how you decide.

(4 marks)

15 Sally divided a two-digit number by another two-digit number. Her answer was 3.18181818..... .

Find two numbers that Sally could have used.

..... and .....

(3 marks)

16 Write this list of numbers in order, smallest first.

$$\sqrt{35}\ ,\ \frac{20}{3}\ ,\ 2.5^2\ ,\ 6.83$$

(2 marks)

17 Write $0.41\dot{6}$ as a fraction in its simplest form.
You must **show full working** in support of your answer.

(3 marks)