

## Sample Paper - 2022/2023

### Foundation - Paper 1 – Non-calculator

Please write clearly in block capitals

Forename:

Surname:

**Time Allowed: 60 minutes**

50

### Materials

For this paper you must have:

- mathematical instruments



You must **not** use a calculator.

### Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

### Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

### Advice

- In all calculations, show clearly how you work out your answer.

1 Write 7489 correct to the nearest thousand.

[1 mark]

Answer \_\_\_\_\_

2 Write the following numbers in order of size.  
Start with the largest number.

1.046 1.64 1.406 1.46

[1 mark]

\_\_\_\_\_

Answer \_\_\_\_\_

3 Write 60% as a fraction.

[1 mark]

Answer \_\_\_\_\_

4 Here is a list of four fractions.

$\frac{20}{30}$   $\frac{12}{18}$   $\frac{14}{22}$   $\frac{16}{24}$

One of these fractions is not equivalent to  $\frac{2}{3}$

Write down this fraction.

[1 mark]

\_\_\_\_\_

Answer \_\_\_\_\_

5 Simplify  $10t + 6t - 13t$

[1 mark]

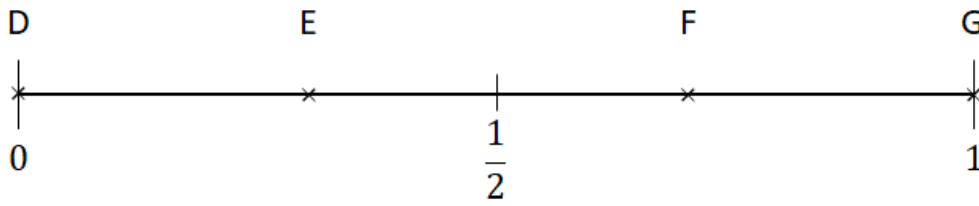
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Answer \_\_\_\_\_

Turn over for next question

6 Here is a probability scale.

It shows the probability of each of the events  $D, E, F$  and  $G$ .



6(a) Which letter represents an event which is certain?

[1 mark]

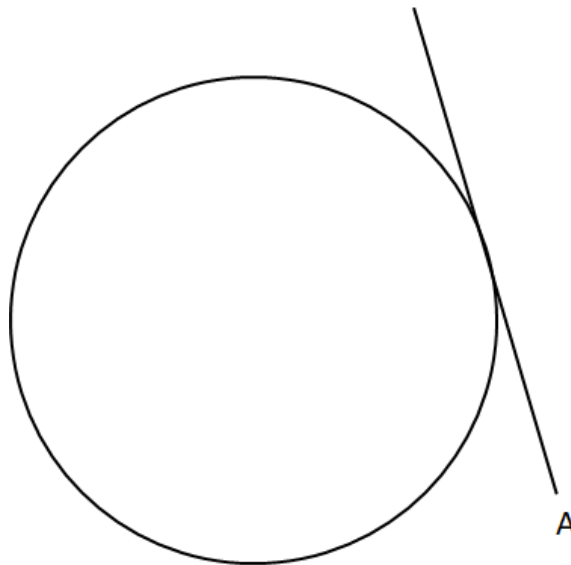
Answer \_\_\_\_\_

6(b) Which letter represents an event which is likely?

[1 mark]

Answer \_\_\_\_\_

7 What is the mathematical name of the line, labelled  $A$ ?



[1 mark]

Answer \_\_\_\_\_

Turn over for next question

**8** Marvin and five of his friends are going camping for 4 days.  
The 6 friends will share the costs of the trip equally.  
Here are the costs for the camping trip.  
£550 for the tents.  
£262 for food and drink.  
£112 for site rent.  
Work out how much Marvin has to pay for his share of the costs.

**[3 marks]**

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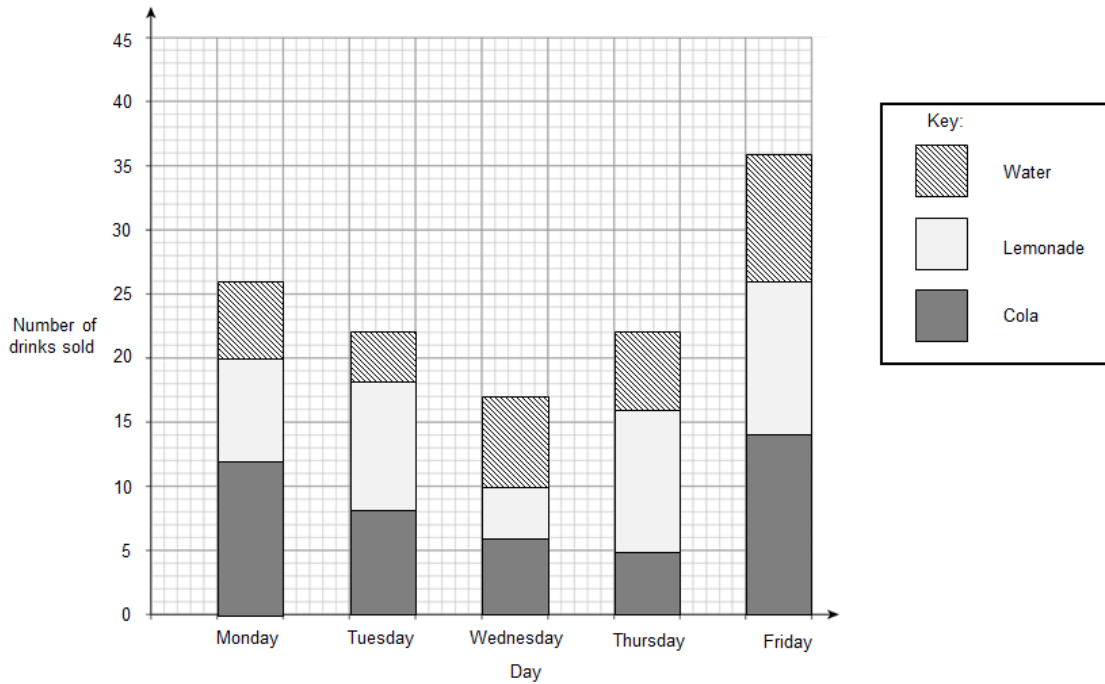
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Answer \_\_\_\_\_

**Turn over for next question**

9 A vending machine sells bottles of water, lemonade and cola.

The composite bar chart shows information about sales from Monday to Friday of a random week.



9(a) How many bottles of water were sold on Wednesday?

[1 mark]

Answer \_\_\_\_\_

9(b) Work out the number of bottles of cola that were sold over the 5 days.

[3 marks]

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Answer \_\_\_\_\_

Turn over for next question

10 Eve has a long piece of wood in the shape of a cuboid that is 380 cm long.  
Eve cuts two 35 cm lengths off the piece of wood.  
She then cuts the rest of the log into as many 40 cm lengths as possible.  
Work out how many 40 cm lengths of the piece of wood Eve can cut.

[3 marks]

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Answer \_\_\_\_\_

11 Peter, Chris and Olivia each earn the same monthly salary.  
Each month, Peter **saves** 27% of his salary and spends the rest of his salary,  
Chris spends  $\frac{7}{10}$  of his salary and **saves** the rest of his salary.  
The amount of salary Olivia saves : The amount of salary Olivia spends = 1 : 4  
Work out who saves the most of their salary each month.

[4 marks]

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Answer \_\_\_\_\_

Turn over for next question

**12** Work out 20% of 180 cm.

**[2 marks]**

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Answer \_\_\_\_\_

**13**  $X = 9y + 4z$

$$y = 4$$

$$z = -7$$

**13(a)** Work out the value of  $X$ .

**[2 marks]**

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Answer \_\_\_\_\_

**13(b)** Solve  $8(n - 5) = 32$

**[2 marks]**

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Answer \_\_\_\_\_

**Turn over for next question**

Turn over ►

**14**  $S = \{\text{multiples of 5 between 27 and 41}\}$   
 $T = \{\text{even numbers between 27 and 41}\}$

**14(a)** Write down all the members of  $S \cup T$

[2 marks]

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Answer \_\_\_\_\_

**14(b)** Write down all the members of  $S \cap T$

[1 mark]

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Answer \_\_\_\_\_

**15** Work out  $3\frac{2}{7} - 1\frac{1}{5}$   
Give your answer as an improper fraction in its simplest form.

[2 marks]

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Answer \_\_\_\_\_

**Turn over for next question**



16

On a farm,

the number of cows and the number of sheep are in the ratio 4 : 7

the number of sheep and the number of chickens are in the ratio 14 : 9

There are 27 chickens on the farm.

How many cows are there on the farm?

[3 marks]

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Answer \_\_\_\_\_

17

Ben is driving across Europe, the journey length is 4232 kilometres.

Ben's average speed is 68.3 km per hour.

He drives for 12 hours per day.

Estimate how many days it will take Ben to complete his journey.

[3 marks]

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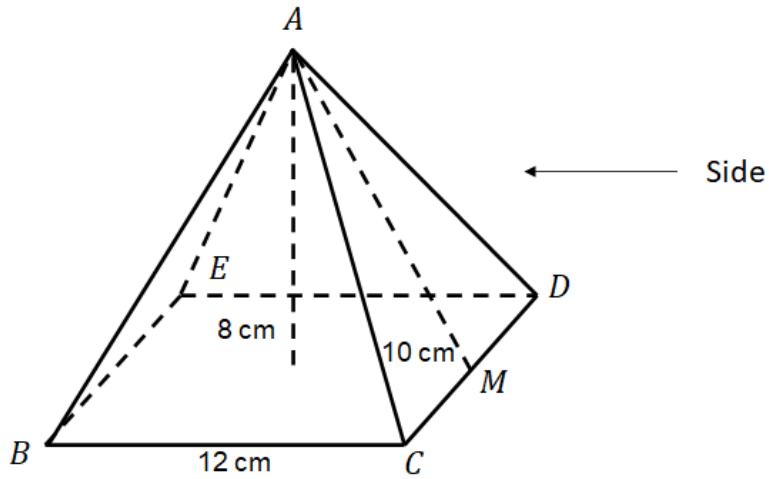
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Answer \_\_\_\_\_

Turn over for next question

18 The diagram below shows a solid square-based pyramid  $ABCDE$ .



The base of the pyramid is a square of side 12 cm.

The height of the pyramid is 8 cm.

$M$  is the midpoint of  $CD$  and  $AM = 10$  cm.

18(a) Which of the following diagrams is an accurate side elevation of the pyramid from the direction of the arrow?

Each square measures 1 cm by 1 cm.

A

B

C

D

[2 marks]

Answer \_\_\_\_\_

Turn over for next question

Turn over ►

**18(b)** Work out the total surface area of the pyramid.

**[4 marks]**

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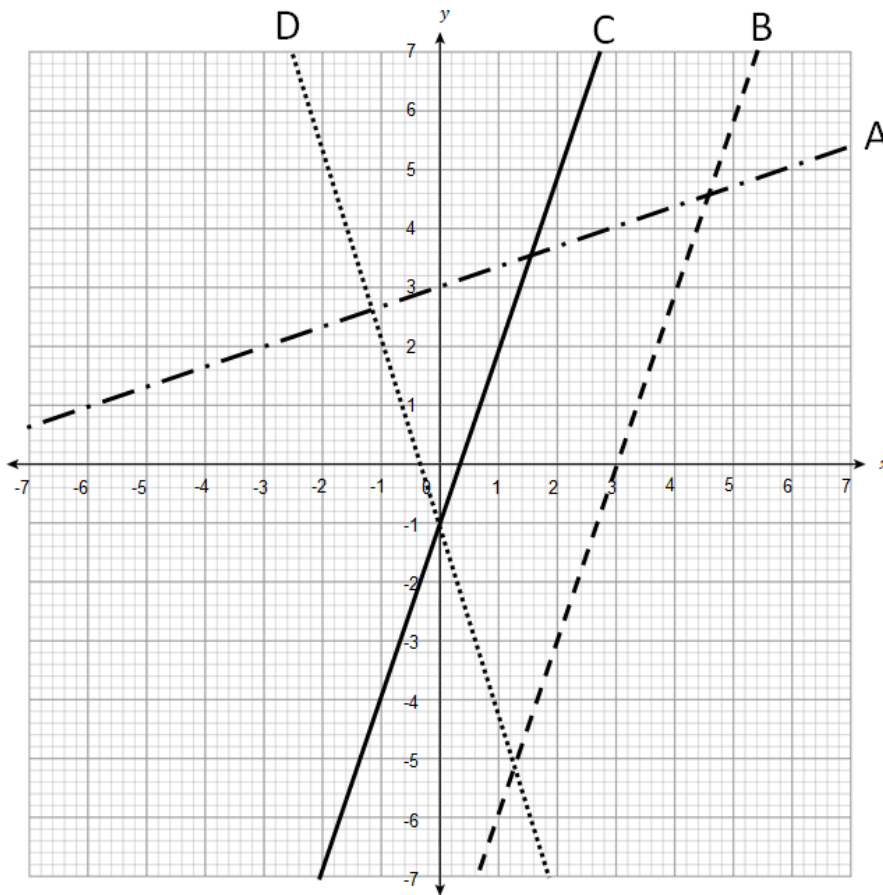
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Answer \_\_\_\_\_

**Turn over for next question**

19 On the grid below, which of the lines corresponds to the line  $y = 3x - 1$ ?  
Give a reason for your answer.



[3 marks]

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Answer \_\_\_\_\_

20

$$a = \begin{pmatrix} 5 \\ -2 \end{pmatrix}, b = \begin{pmatrix} 7 \\ 4 \end{pmatrix}$$

Work out  $2a + 3b$  as a column vector.

[2 marks]

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Answer \_\_\_\_\_

End of Questions



# GCSE MATHS EQUIVALENCY

Practice Exam Papers

## Sample Paper - 2022/2023 Foundation - Paper 2 – Calculator

Please write clearly in block capitals

Forename:
Surname:

**Time Allowed: 60 minutes**

<b>50</b>

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### Information

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### Advice

- In all calculations, show clearly how you work out your answer.

1 Write  $\frac{7}{20}$  as a percentage.

[1 mark]

Answer \_\_\_\_\_

2 Write 7.48 correct to 1 decimal place.

[1 mark]

Answer \_\_\_\_\_

3 Work out the value of  $2^5$

[1 mark]

Answer \_\_\_\_\_

4 Change 3.45 litres to millilitres.

[1 mark]

Answer \_\_\_\_\_

5 Shelly is thinking of a number.

She says,

“My number is odd. It is a factor of 54 and a multiple of 9”

There are two possible numbers that Shelly can be thinking of.

Write down these two numbers.

[3 marks]

\_\_\_\_\_

\_\_\_\_\_

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Answer \_\_\_\_\_

Turn over for next question

**6** Brian has three cards, with the numbers 2, 5 and 8 on them.  
He can combine the cards to make several three digit numbers.  
List all the possible combinations, ranking them from largest to smallest.

[2 marks]

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Answer \_\_\_\_\_

**7(a)** Write down all the prime numbers between 30 and 40.

[2 marks]

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Answer \_\_\_\_\_

**7(b)** Debbie says,  
"all prime numbers are odd numbers"  
Is Debbie right?  
Give a reason for your answer.

[1 mark]

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Answer \_\_\_\_\_

**8(a)** Solve  $\frac{m}{7} = 5$

[1 mark]

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Answer \_\_\_\_\_

**Turn over for next question**

**8(b)** Solve  $9p - 7 = 47$

[1 mark]

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Answer \_\_\_\_\_

**9** There are 179 berries are in a punnet.  
58 of the berries are blueberries.  
A berry is taken at random from the punnet.  
Find the probability that the berry is **not** a blueberry.  
Give your answer as a fraction.

[2 marks]

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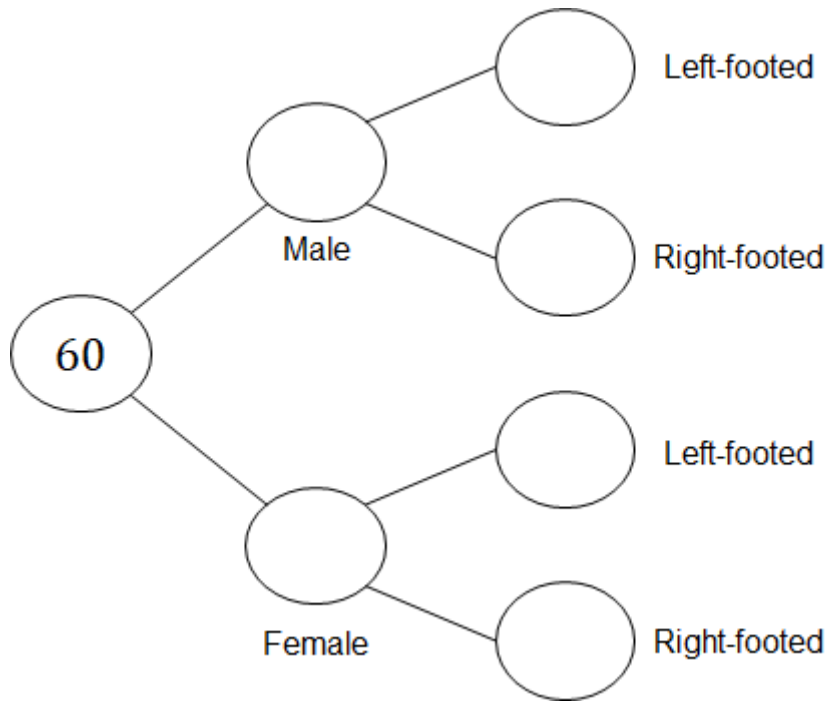
Answer \_\_\_\_\_

Turn over for next question



- 10 A football club has a men's and women's team.  
41 of the 60 players are male.  
15 of the 49 right footed players are female.

Complete the frequency tree below to represent this information.



[3 marks]

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Turn over for next question

11

Daisy buys some bags of sweets.

There are 19 sweets, 20 sweets, 21 sweets, 22 sweets or 23 sweets in each bag.

The table gives some information about the number of sweets in each bag.

Number of sweets	Frequency
19	4
20	1
21	2
22	3
23	

The total number of sweets is 342

How many bags contained 23 sweets?

[3 marks]

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Answer \_\_\_\_\_

Turn over for next question

12 Here is a list of ingredients for making 16 flapjacks.  
These flapjacks can only be made in batches of 16.

<p style="text-align: center;"><b>Ingredients for 16 flapjacks</b></p> <p style="text-align: center;">225 g butter 250 g sugar 75 g golden syrup 275 g porridge oats</p>
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Daniel has the following ingredients

850 g butter

1100 g sugar

325 g golden syrup

1.5 kg porridge oats

What is the greatest number of flapjacks Daniel can make?

You must show your working.

[3 marks]

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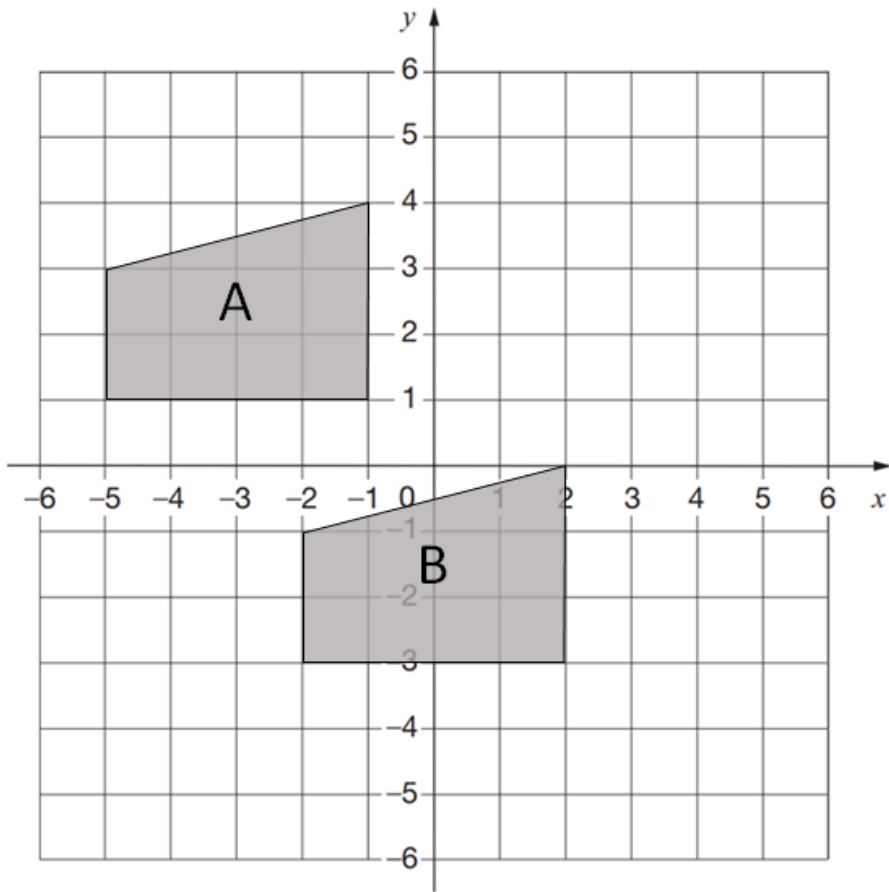
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Answer \_\_\_\_\_

Turn over for next question

Turn over ►

13



Describe the single transformation that maps shape *A* onto shape *B*.

[2 marks]

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14(a) Simplify  $(3x^3y^4)^3$

[2 marks]

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Answer \_\_\_\_\_

Turn over for next question

Turn over ►

14(b) Simplify  $\frac{36s^7t^3}{9s^5t}$

[2 marks]

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Answer \_\_\_\_\_

15(a) Find the lowest common multiple (LCM) of 14 and 32.

[2 marks]

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Answer \_\_\_\_\_

15(b)  $O = 2^3 \times 5 \times 7$      $P = 2^2 \times 3^2 \times 7 \times 11$

Write down the highest common factor (HCF) of  $O$  and  $P$ .

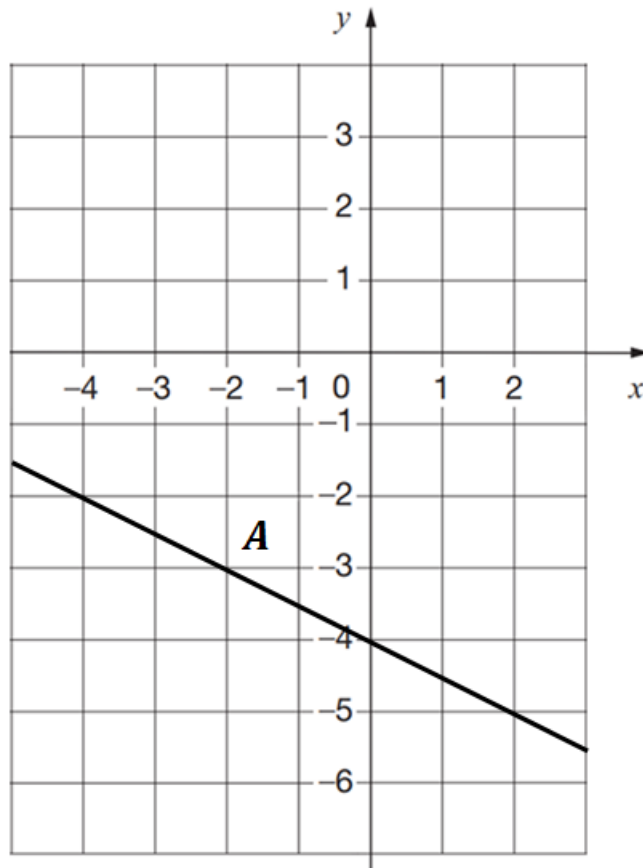
[1 mark]

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Answer \_\_\_\_\_

Turn over for next question

16 The line  $A$  is shown on the grid.



Find an equation for the line  $A$ .

[3 marks]

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Answer \_\_\_\_\_

Turn over for next question

**17** Alex buys a new car worth £7000 and gets a discount of 10%.  
Alex pays a deposit for the car.  
She then pays the rest of the cost in 16 equal monthly payments of £306.25.  
Find the ratio of the deposit Alex pays to the total of the 16 equal payments.  
Give your answer in its simplest form.

**[5 marks]**

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Answer \_\_\_\_\_

**18** A force of 350 N acts on area of 20 cm<sup>2</sup>  
The force is increased by 50 N.  
The area is increased by 5 cm<sup>2</sup>  
Andy says, "The pressure has decreased by less than 10%"  
Is Andy correct?  
You must show how you get your answer.  
Use the equation Pressure =  $\frac{\text{Force}}{\text{Area}}$  to justify your answer.

**[3 marks]**

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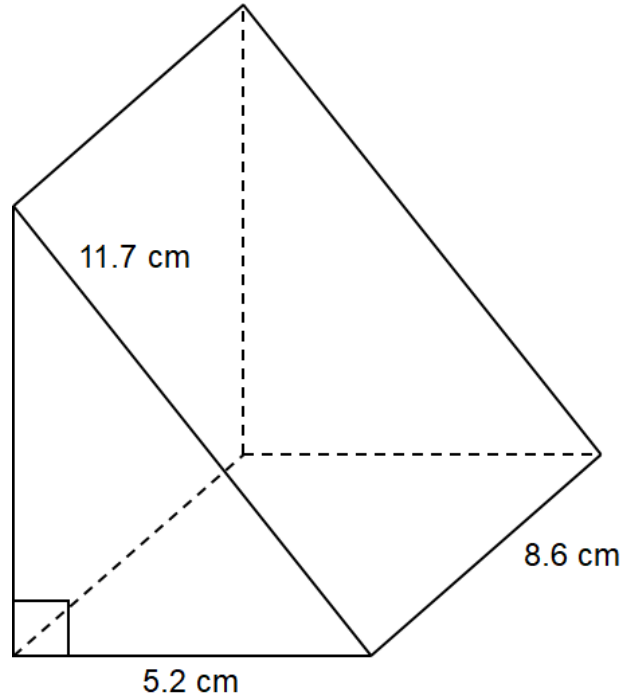
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Answer \_\_\_\_\_

**Turn over for next question**

19

Here is a triangular prism.



Work out the volume of the prism.

Give your answer to correct to 3 significant figures.

[5 marks]

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Answer \_\_\_\_\_

End of Questions