GCSE MATHS EQUIVALENCY
Practice Exam Papers

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.

$$1.046 \quad 1.64 \quad 1.406 \quad 1.46$$

[1 mark]

Answer _____

3 Write 60% as a fraction.

[1 mark]

Answer _____

4 Here is a list of four fractions.

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

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

Write down this fraction.

[1 mark]

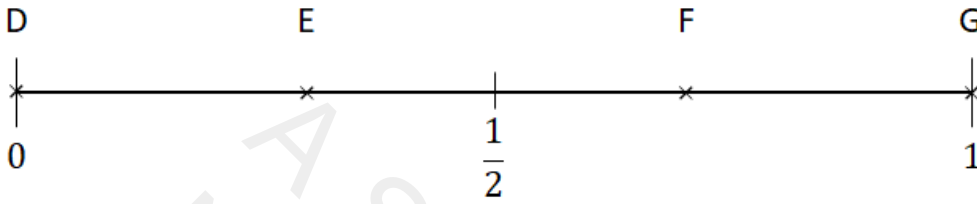Answer _____

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

[1 mark]

Answer _____

Turn over for next question

5

Turn over ▶

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?
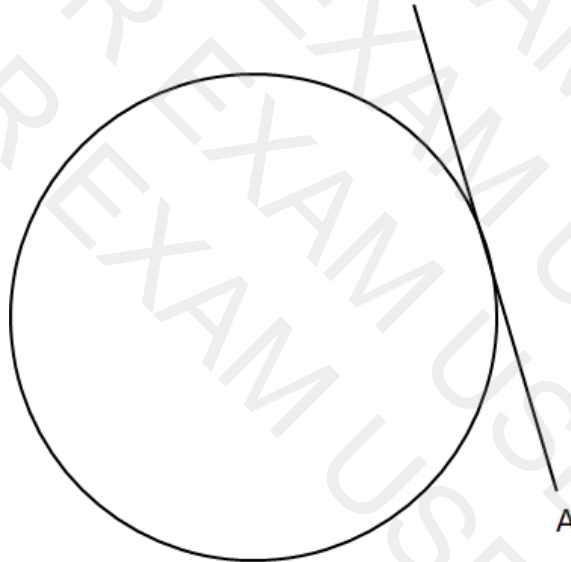
[1 mark]

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

3

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.

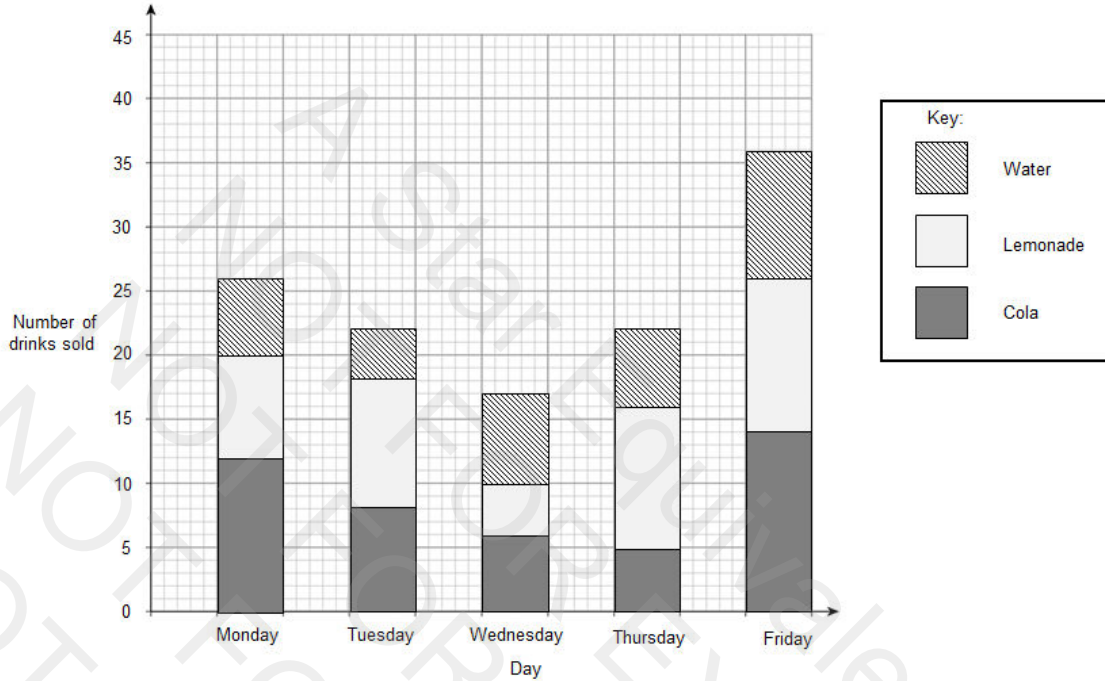Work out how much Marvin has to pay for his share of the costs.

[3 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

Turn over for next question

3

Turn over ▶

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]

_____

_____

_____

_____

Answer _____

Turn over for next question

4

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]

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 $\dfrac{7}{10}$ 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]

Answer _____

Turn over for next question

7

Turn over ▶

12   Work out 20% of 180 cm.

_____

_____

_____

            Answer _____

13 $X = 9y + 4z$

            $y = 4$

            $z = -7$

13(a)   Work out the value of X.

[2 marks]

_____

_____

_____

            Answer _____

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

[2 marks]

_____

_____

_____

            Answer _____

Turn over for next question

6

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14 S = {multiples of 5 between 27 and 41}

           T = {even numbers between 27 and 41}

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

[2 marks]

_____

_____

           Answer _____

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

[1 mark]

_____

_____

           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]

_____

_____

_____

_____

           Answer _____

Turn over for next question

5

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]

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.
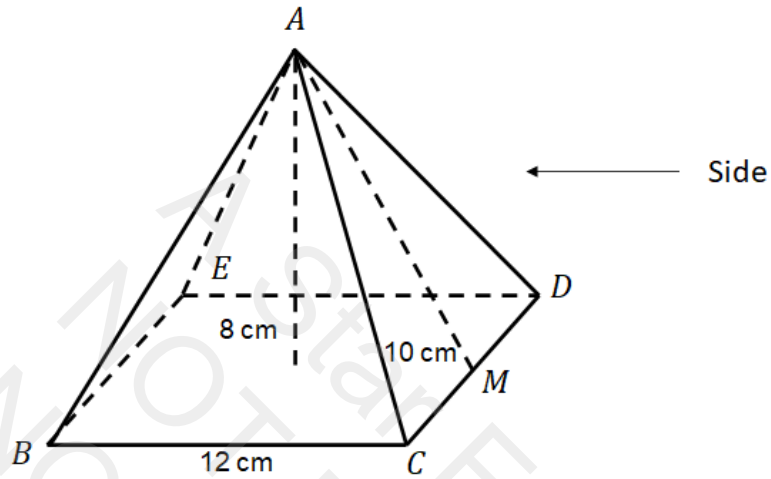
[3 marks]

Answer

Turn over for next question

6

Turn over ▶

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.

[2 marks]

Answer _____

Turn over for next question

2

Turn over ▶

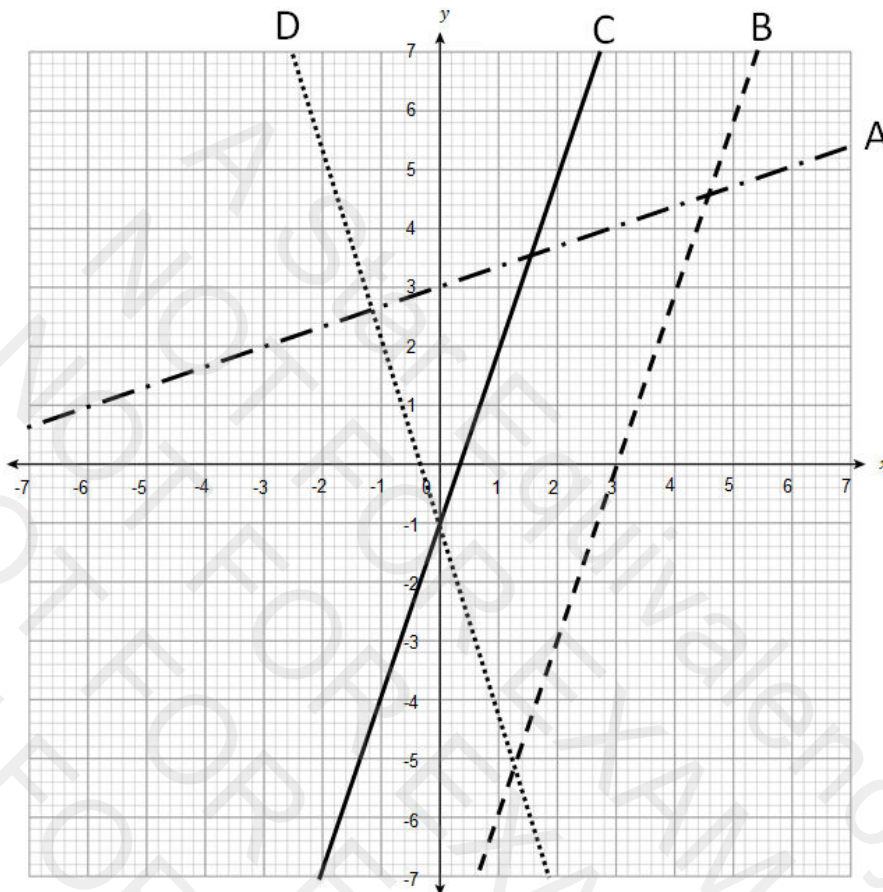**18(b)** Work out the total surface area of the pyramid.

[4 marks]

Answer

Turn over for next question

4

19 On the grid below, which of the lines corresponds to the line $y = 3x - 1$?

Give a reason for your answer.

[3 marks]

_____

_____

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]

_____

_____

Answer _____

End of Questions

5

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

Please write clearly in block capitals

Forename:
Surname:

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Materials

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Advice

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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]

_____

_____

_____

_____

Answer _____

Turn over for next question

Turn over ▶

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]

_____

_____

Answer _____

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

[2 marks]

_____

Answer _____

7(b)   Debbie says,

"all prime numbers are odd numbers"

Is Debbie right?

Give a reason for your answer.

[1 mark]

_____

Answer _____

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

[1 mark]

_____

Answer _____

Turn over for next question

6

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

[1 mark]

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.
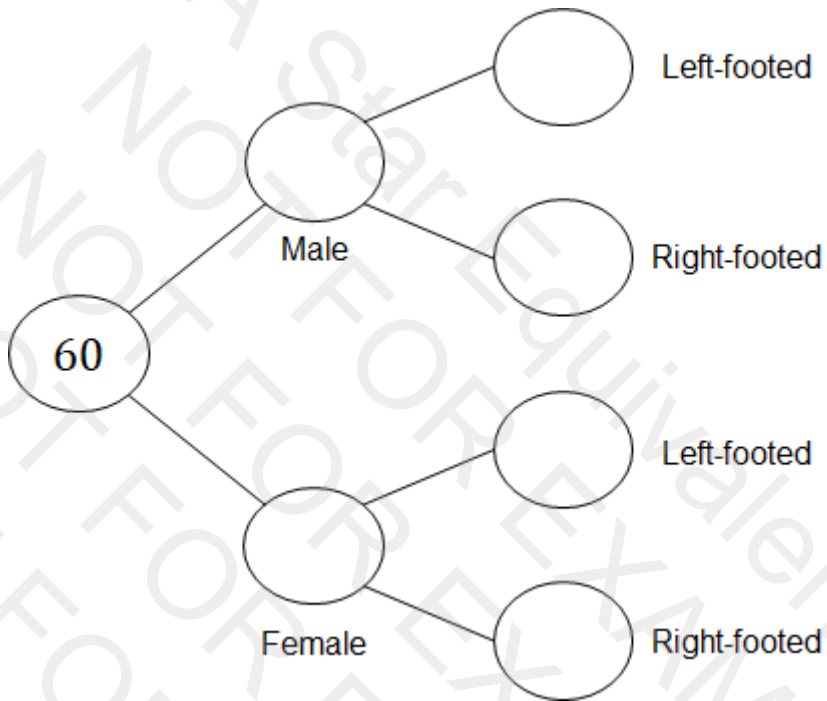
Give your answer as a fraction.

[2 marks]

Answer

Turn over for next question

3

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]

_____

_____

_____

_____

Turn over for next question

3

Turn over ▶

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]

Answer _____

Turn over for next question

Turn over ▶

12 Here is a list of ingredients for making 16 flapjacks.

These flapjacks can only be made in batches of 16.

Ingredients for 16 flapjacks

225 g butter
250 g sugar
75 g golden syrup
275 g porridge oats

Daniel has the following ingredients

850 g butter

1100 g sugar

325 g golden syrup

1.5 kg porridge oats

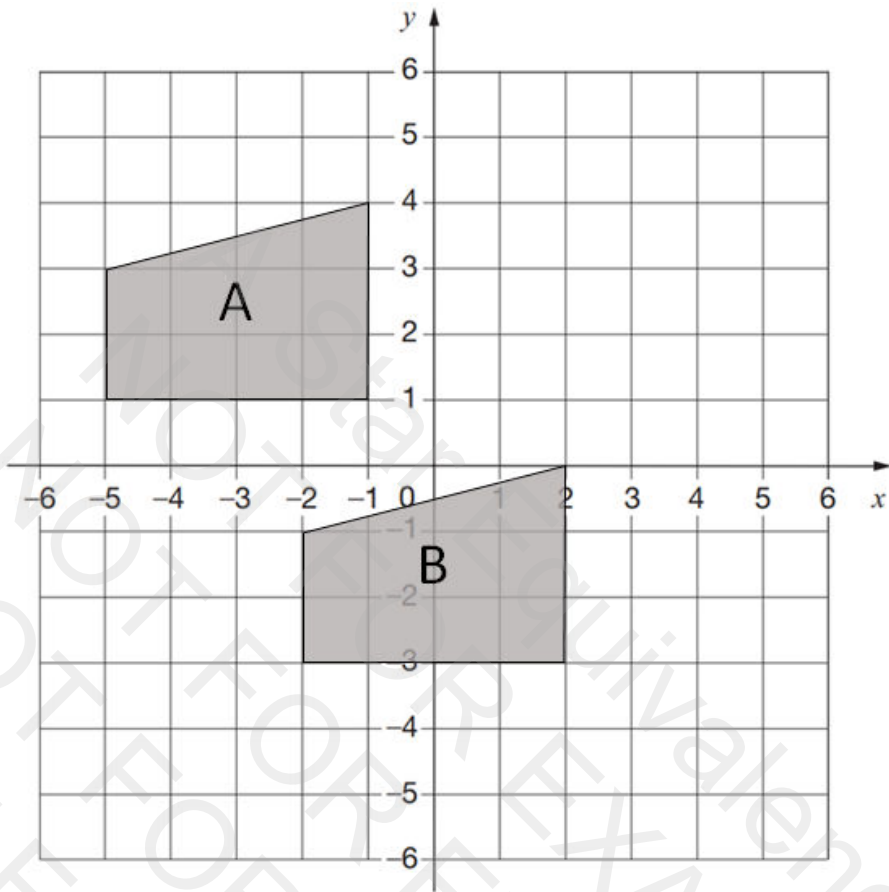What is the greatest number of flapjacks Daniel can make?

You must show your working.

[3 marks]

Answer

13

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

[2 marks]

_____

_____

_____

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

[2 marks]

_____

_____

Answer _____

Turn over for next question

4

Turn over ▶

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

[2 marks]

_____

_____

Answer _____

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

[2 marks]

_____

_____

Answer _____

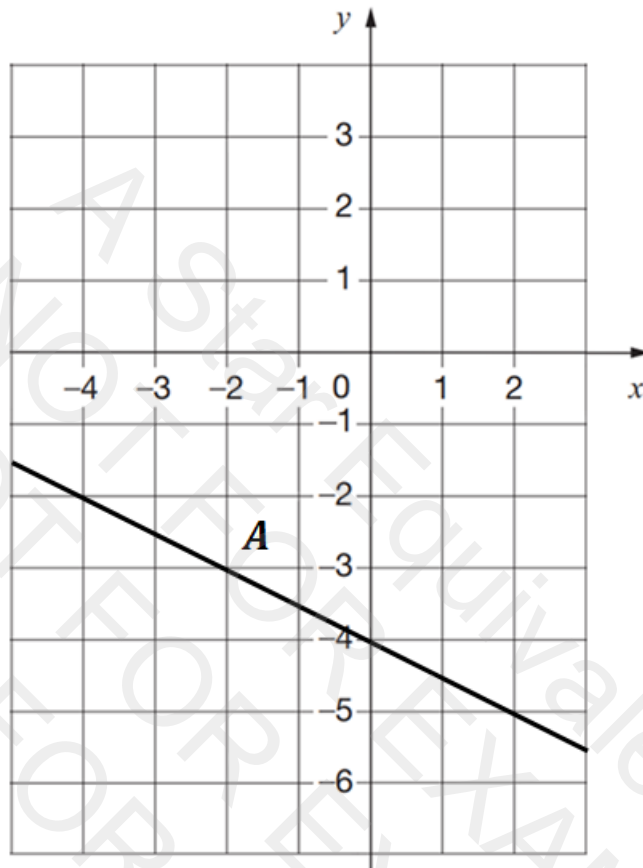**15(b)** $O = 2^3 \times 5 \times 7$ $P = 2^2 \times 3^2 \times 7 \times 11$

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

[1 mark]

_____

Answer _____

Turn over for next question

5

Turn over ▶

16 The line A is shown on the grid.

Find an equation for the line A.

[3 marks]

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]

Answer

---

18   A force of 350 N acts on area of 20 cm^2

The force is increased by 50 N.

The area is increased by 5 cm^2

Andy says, "The pressure has decreased by less than 10%"

Is Andy correct?

You must show how you get your answer.

Use the equation $Pressure = \dfrac{Force}{Area}$ to justify your answer.

[3 marks]
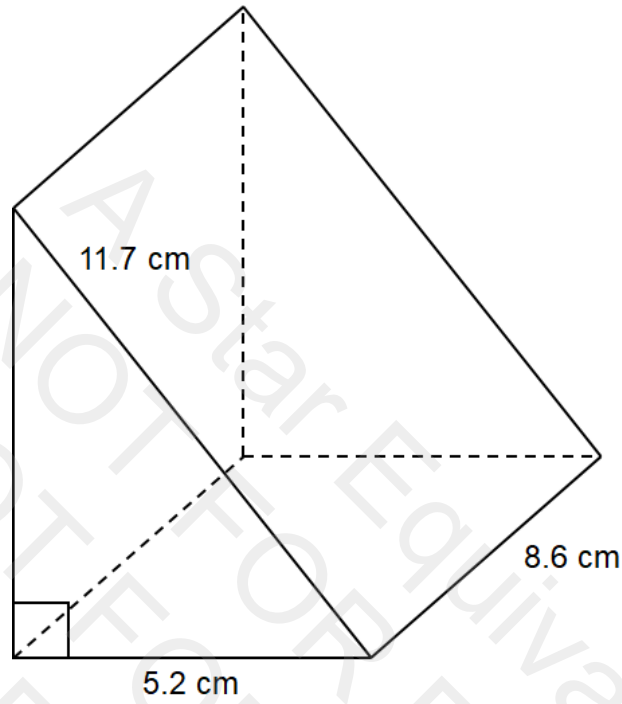
Answer

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.

_____

_____

_____

_____

_____

_____

_____

_____

Answer   _____

End of Questions

END