

Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** Write 600 as a product of powers of its prime factors.
Show your working clearly.

.....
(Total for Question 1 is 3 marks)



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2 Show that $2\frac{4}{7} \div 1\frac{1}{8} = 2\frac{2}{7}$

(Total for Question 2 is 3 marks)

- 3 The bearing of Paris from London is 149°
Work out the bearing of London from Paris.

(Total for Question 3 is 2 marks)

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- 4 $\mathcal{E} = \{\text{letters of the alphabet}\}$
 $B = \{\text{b, r, a, z, i, l}\}$
 $I = \{\text{i, r, e, l, a, n, d}\}$

(a) List the members of the set

(i) $B \cup I$

(ii) $B \cap I'$

(2)

$K = \{\text{k, e, n, y, a}\}$

Cody writes down the statement $B \cap K = \emptyset$
Cody's statement is wrong.

(b) Explain why.

(1)

(Total for Question 4 is 3 marks)



5

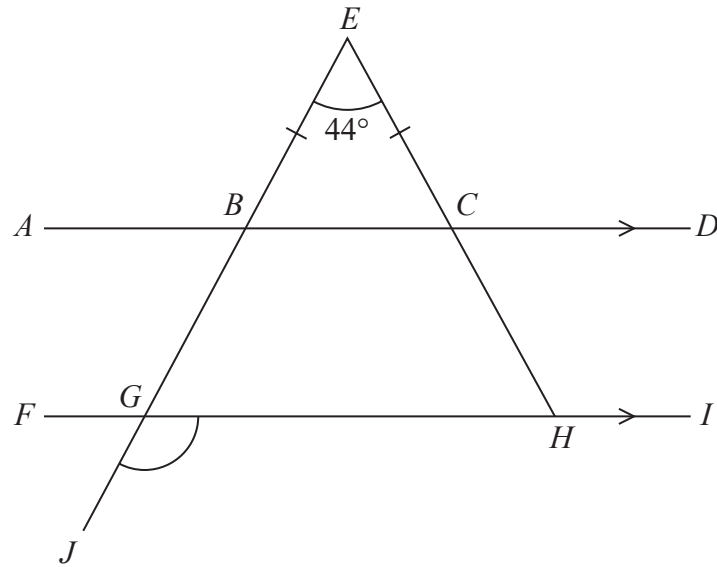


Diagram **NOT** accurately drawn

ABCD and *FGHI* are parallel straight lines.
EBGJ and *ECH* are straight lines.

$$BE = CE$$

$$\text{Angle } BEC = 44^\circ$$

Work out the size of angle *JGH*.

Give a reason for each stage of your working.

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(Total for Question 5 is 5 marks)

6



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6 Mariana sells bags of bird food.

The bags that Mariana sold last week each contained 12 kg of seeds.

The bags that she is going to sell next week will each contain a mixture of nuts and seeds where for each bag

$$\text{weight of nuts : weight of seeds} = 4 : 5$$

The total weight of the nuts and the seeds in each bag will be 19.35 kg

The weight of seeds in each bag that Mariana sells next week will be less than the weight of seeds in each bag that Mariana sold last week.

Work out this decrease as a percentage of the weight of seeds in each bag that Mariana sold last week.

Give your answer correct to one decimal place.

..... %

(Total for Question 6 is 4 marks)



7 Here is a right-angled triangle.

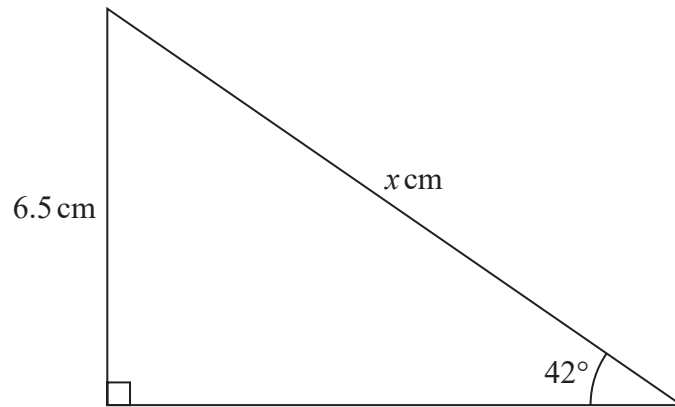


Diagram **NOT**
accurately drawn

Work out the value of x .
Give your answer correct to one decimal place.

$x =$

(Total for Question 7 is 3 marks)

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8 Solve the simultaneous equations

$$5a + 2c = 10$$

$$2a - 4c = 7$$

Show clear algebraic working.

$$a = \dots\dots\dots$$

$$c = \dots\dots\dots$$

(Total for Question 8 is 3 marks)

9 (i) Factorise $x^2 + 2x - 24$

.....
(2)

(ii) Hence solve $x^2 + 2x - 24 = 0$

.....
(1)

(Total for Question 9 is 3 marks)



10 Here is a triangular prism.

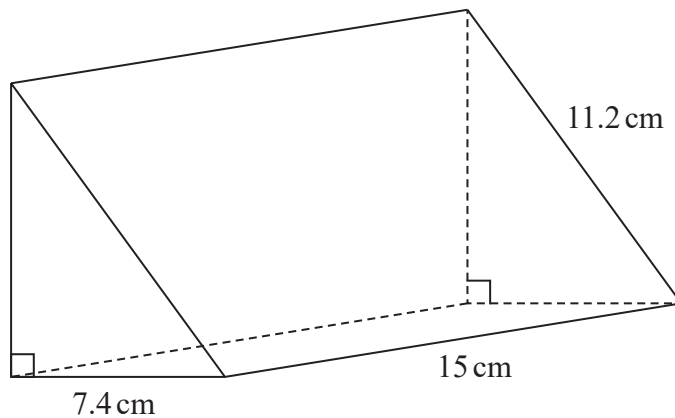


Diagram **NOT** accurately drawn

Work out the volume of the prism.
Give your answer correct to 3 significant figures.

..... cm³

(Total for Question 10 is 5 marks)

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