Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The table gives information about the number of days that 100 cars were in an airport car park.

Number of days (d)	Frequency
$0 < d \leqslant 4$	16
$4 < d \leqslant 8$	18
$8 < d \leqslant 12$	19
$12 < d \leqslant 16$	27
$16 < d \leqslant 20$	20

(a) Write down the modal class.

(1)

(b) Work out an estimate for the mean number of days.

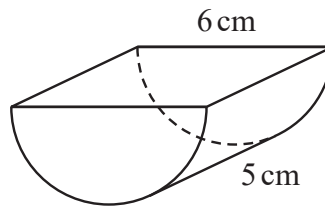.. days

(4)

(Total for Question 1 is 5 marks)

2 The diagram shows two solid toy bricks, Brick **A** and Brick **B**.
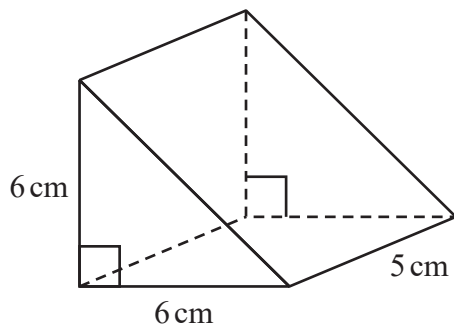
Brick **A**

Brick **B**

Diagram **NOT** accurately drawn

Brick **A** is a triangular prism of length 5 cm.
The cross section of Brick **A** is an isosceles right-angled triangle with equal sides of length 6 cm.

Brick **B** is half a cylinder of length 5 cm.
The semicircular cross section of Brick **B** has diameter 6 cm.

The volume of Brick **A** is greater than the volume of Brick **B**.

How much greater?
Give your answer correct to 1 decimal place.

cm³

(Total for Question 2 is 4 marks)

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3 Here are the first five terms of a number sequence *S*.

$$10 \quad 16 \quad 22 \quad 28 \quad 34$$

(a) Find an expression, in terms of *n*, for the *n*th term of this sequence.

(2)

The *n*th term of a sequence *T* is given by $n^2 - 3$

There are numbers that are terms in both the sequence *S* and the sequence *T*.

(b) Find one of these numbers.

(2)

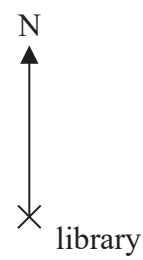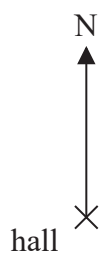**(Total for Question 3 is 4 marks)**

4 On Saturday, Jacob walked 10 800 steps.
On Sunday, he walked 7% more steps than on Saturday.

Work out how many steps Jacob walked on Sunday.

(Total for Question 4 is 3 marks)

5 The scale drawing shows the position of a hall and the position of a library.

N

↑

hall ✕

N

↑

✕ library

Scale: 1 cm represents 20 metres

A post box is 140 metres from the library on a bearing of 220°

(a) Show the position of the post box on the scale drawing.
Mark the position with a cross (✗) and label it *P*.

(2)

(b) Use your scale drawing to find

   (i) the real distance, in metres, of the hall from the post box,

m

   (ii) the bearing of the hall from the post box.

°

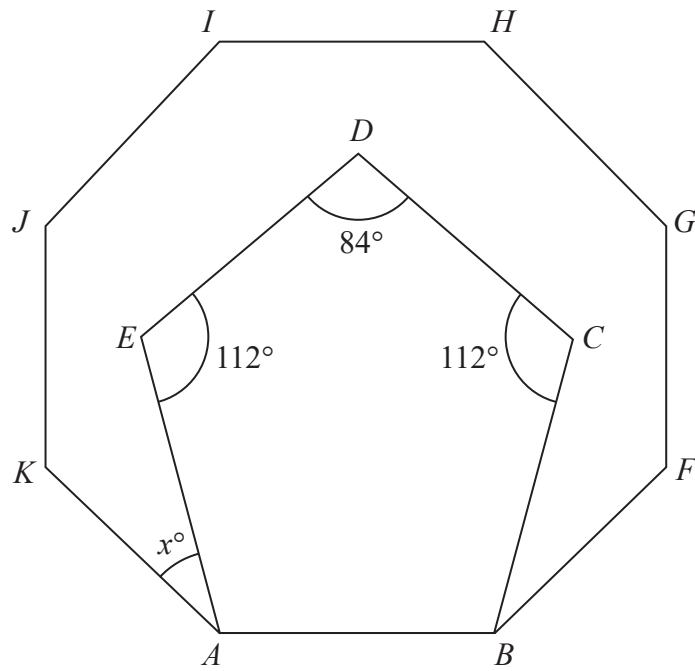**(2)**

(Total for Question 5 is 4 marks)

6

Diagram **NOT** accurately drawn

Pentagon *ABCDE* is drawn inside the regular octagon *ABFGHIJK*.
The pentagon has exactly one line of symmetry.

Work out the value of *x*.

$x =$

(Total for Question 6 is 4 marks)

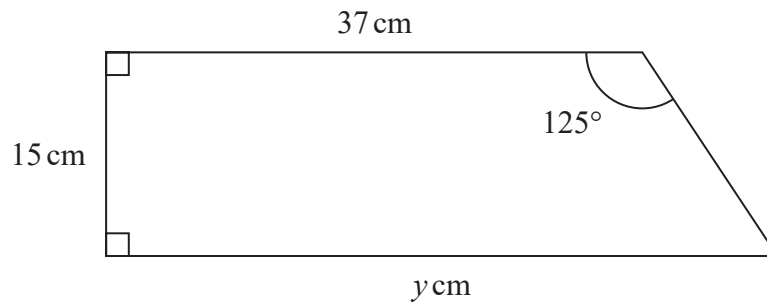**7** The diagram shows a trapezium.

37 cm

125°

15 cm

y cm

Diagram **NOT** accurately drawn

Work out the value of *y*.
Give your answer correct to 1 decimal place.

y =

(Total for Question 7 is 4 marks)

8 (a) Simplify fully $\dfrac{15k^4m^3}{5km^2}$

(2)

(b) Solve the inequality $7 < 4x - 1 \leqslant 17$

(3)

(Total for Question 8 is 5 marks)

9 Omar invests 6000 dirham for 4 years in a savings account.
He will get 1.5% per year compound interest.

Work out the total amount of interest Omar will have received by the end of 4 years.
Give your answer correct to the nearest dirham.

.... dirham

(Total for Question 9 is 3 marks)