

Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Here is a hexagon $ABCDEF$.

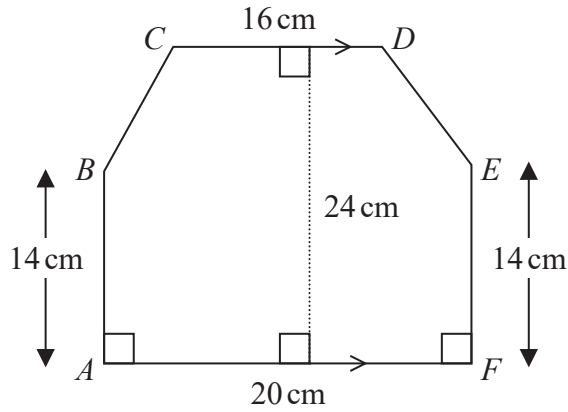


Diagram NOT accurately drawn

CD is parallel to AF .

Work out the area of hexagon $ABCDEF$.

..... cm^2

(Total for Question 1 is 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



- 2 The table gives information about the times, in hours, some students spent doing sport one week.

Time (T hours)	Frequency
$0 < T \leq 2$	5
$2 < T \leq 4$	9
$4 < T \leq 6$	24
$6 < T \leq 8$	40
$8 < T \leq 10$	7

Calculate an estimate for the mean time these students spent doing sport.
Give your answer in hours, correct to 1 decimal place.

..... hours

(Total for Question 2 is 4 marks)

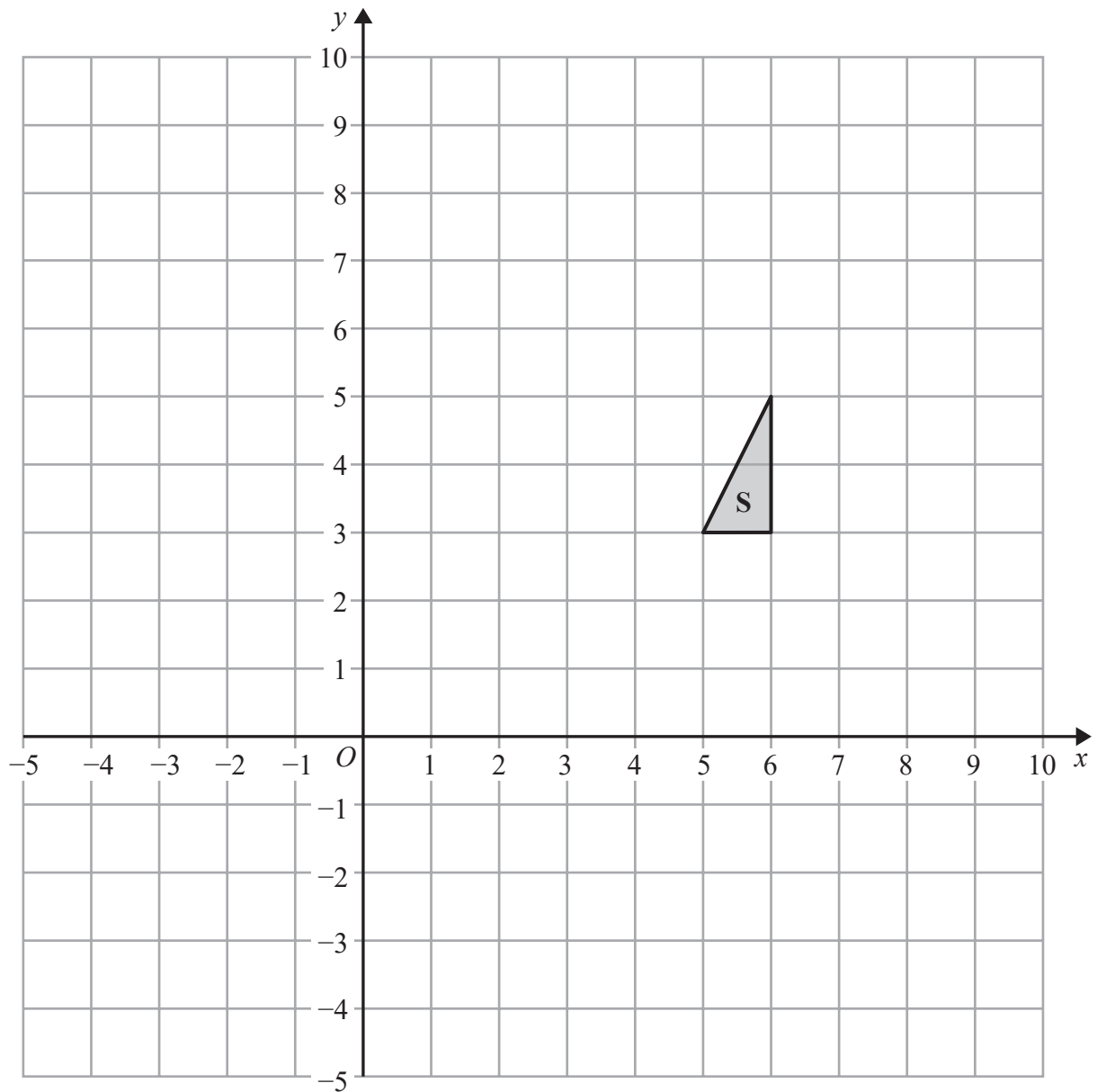
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



3



- (a) Reflect triangle **S** in the line $y = x$
Label the new triangle **R**. (2)
- (b) Translate triangle **S** by the vector $\begin{pmatrix} -4 \\ -6 \end{pmatrix}$
Label the new triangle **T**. (1)

(Total for Question 3 is 3 marks)



4 Anna and Lionel share \$675 in the ratio 4 : 5

Lionel gives $\frac{3}{5}$ of his share of the money to his mother.

How much money does Lionel give to his mother?

\$.....

(Total for Question 4 is 3 marks)

5 $E = n^2 + n + 5$

Ali thinks that the value of E will be a prime number for any whole number value of n .

Is Ali correct?

You must give a reason for your answer.

(Total for Question 5 is 2 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



6

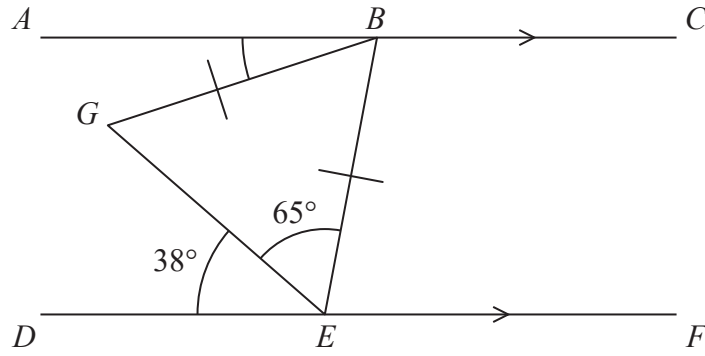


Diagram **NOT** accurately drawn

ABC and *DEF* are parallel lines.

$BG = BE$

Angle $DEG = 38^\circ$

Angle $GEB = 65^\circ$

Find the size of angle ABG .

(Total for Question 6 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



7 Here are the first four terms of an arithmetic sequence.

6 10 14 18

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

.....
(2)

(b) Write down an expression, in terms of n , for the $(n + 1)$ th term of this sequence.

.....
(1)

(Total for Question 7 is 3 marks)

8 (a) Write 1 390 000 in standard form.

.....
(1)

(b) Write 0.005 in standard form.

.....
(1)

(Total for Question 8 is 2 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



- 9 Here is an empty pool in the shape of a cuboid.

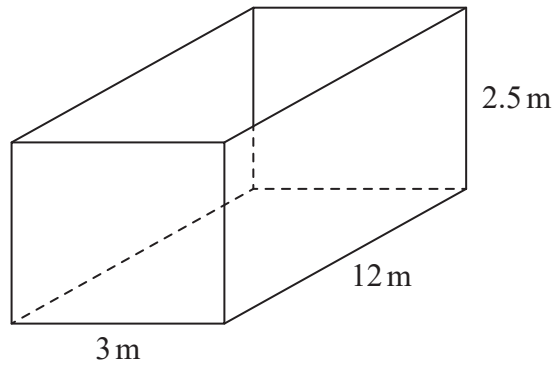


Diagram **NOT**
accurately drawn

The width of the pool is 3 m.

The length of the pool is 12 m.

The top of the pool is 2.5 m above the base of the pool.

Jeb is going to put water in the pool.

The level of the surface of the water will be 60 cm below the top of the pool.

Water flows into the pool at 400 litres per minute.

$1 \text{ m}^3 = 1000 \text{ litres}$

How long will it take to fill the pool to 60 cm below the top of the pool?

Give your answer in hours and minutes.

..... hours minutes

(Total for Question 9 is 4 marks)

