

Write your name here

Surname

Other Names

Mathematics

June 2017 Paper 2 (Calculator Allowed)
Part 1 (First half of the paper)
Edexcel Higher Tier

Time: 45 minutes

Q	Topic	Max Mark	My Marks
1	Probability and Relative Frequency	3	
2	Sharing ratio, Percentage/Fraction of Amount	5	
3	Plans and Elevations	4	
4	Compound Measures, Speed	5	
5	Similar Shapes	4	
6	Compound Interest	3	
7	Error Intervals	2	
8	Cumulative Frequency	2	
9	Combinations of Transformations	3	
10	Standard Form	4	
11	Solving Equations	4	
	Total	39	

For worked solutions and video solutions visit mathsgenie.co.uk

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 The table shows the probabilities that a biased dice will land on 2, on 3, on 4, on 5 and on 6

Number on dice	1	2	3	4	5	6
Probability		0.17	0.18	0.09	0.15	0.1

Neymar rolls the biased dice 200 times.

Work out an estimate for the total number of times the dice will land on 1 or on 3

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

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2 On Saturday, some adults and some children were in a theatre.
The ratio of the number of adults to the number of children was 5 : 2

Each person had a seat in the Circle or had a seat in the Stalls.

$\frac{3}{4}$ of the children had seats in the Stalls.

117 children had seats in the Circle.

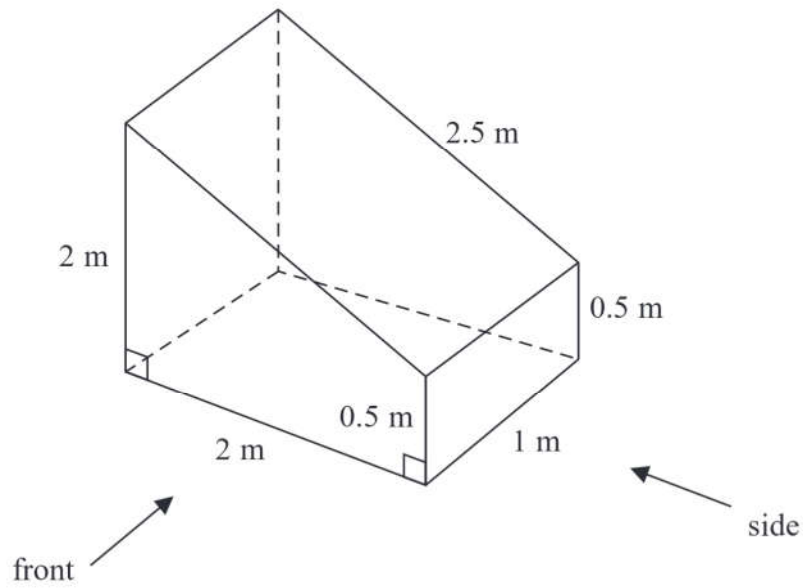
There are exactly 2600 seats in the theatre.

On this Saturday, were there people on more than 60% of the seats?
You must show how you get your answer.

(Total for Question 2 is 5 marks)



- 3 The diagram shows a prism with a cross section in the shape of a trapezium.



On the centimetre grid below, draw the front elevation and the side elevation of the prism.
Use a scale of 2 cm to 1 m.



(Total for Question 3 is 4 marks)



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4 Olly drove 56 km from Liverpool to Manchester.
He then drove 61 km from Manchester to Sheffield.

Olly's average speed from Liverpool to Manchester was 70 km/h.
Olly took 75 minutes to drive from Manchester to Sheffield.

(a) Work out Olly's average speed for his total drive from Liverpool to Sheffield.

..... km/h
(4)

Janie drove from Barnsley to York.

Janie's average speed from Barnsley to Leeds was 80 km/h.
Her average speed from Leeds to York was 60 km/h.

Janie says that the average speed from Barnsley to York can be found by working out the mean of 80 km/h and 60 km/h.

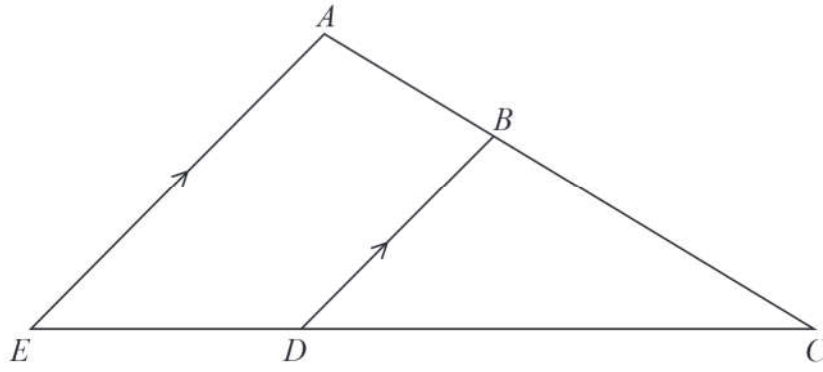
(b) If Janie is correct, what does this tell you about the two parts of Janie's journey?

.....
.....
(1)

(Total for Question 4 is 5 marks)



5



ABC and EDC are straight lines.

EA is parallel to DB .

$EC = 8.1$ cm.

$DC = 5.4$ cm.

$DB = 2.6$ cm.

(a) Work out the length of AE .

..... cm
(2)

$AC = 6.15$ cm.

(b) Work out the length of AB .

..... cm
(2)

(Total for Question 5 is 4 marks)

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6



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6 Anil wants to invest £25 000 for 3 years in a bank.

<p>Personal Bank</p> <p>Compound Interest</p> <p>2% for each year</p>
--

<p>Secure Bank</p> <p>Compound Interest</p> <p>4.3% for the first year 0.9% for each extra year</p>
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Which bank will give Anil the most interest at the end of 3 years?
You must show all your working.

(Total for Question 6 is 3 marks)

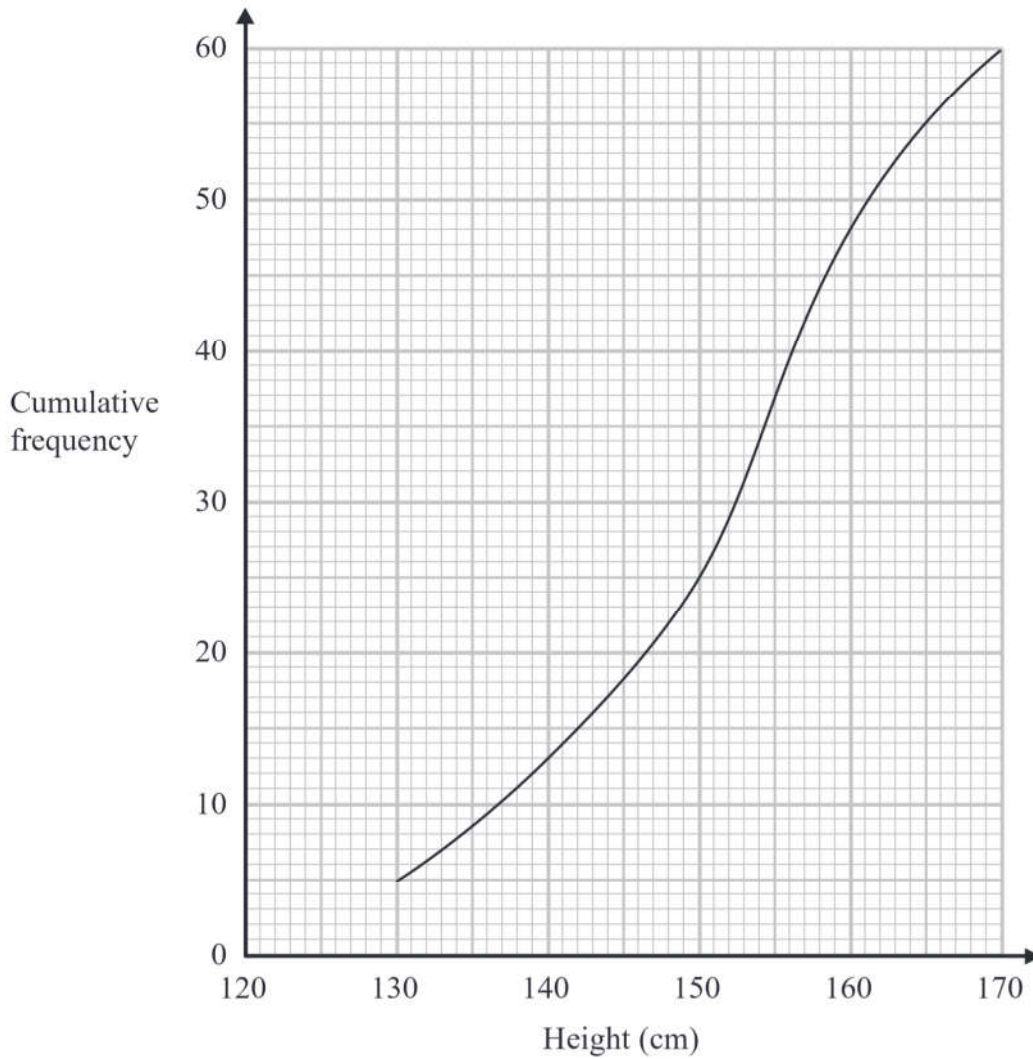
7 A number, n , is rounded to 2 decimal places.
The result is 4.76

Using inequalities, write down the error interval for n .

(Total for Question 7 is 2 marks)



- 8 The cumulative frequency graph shows some information about the heights, in cm, of 60 students.

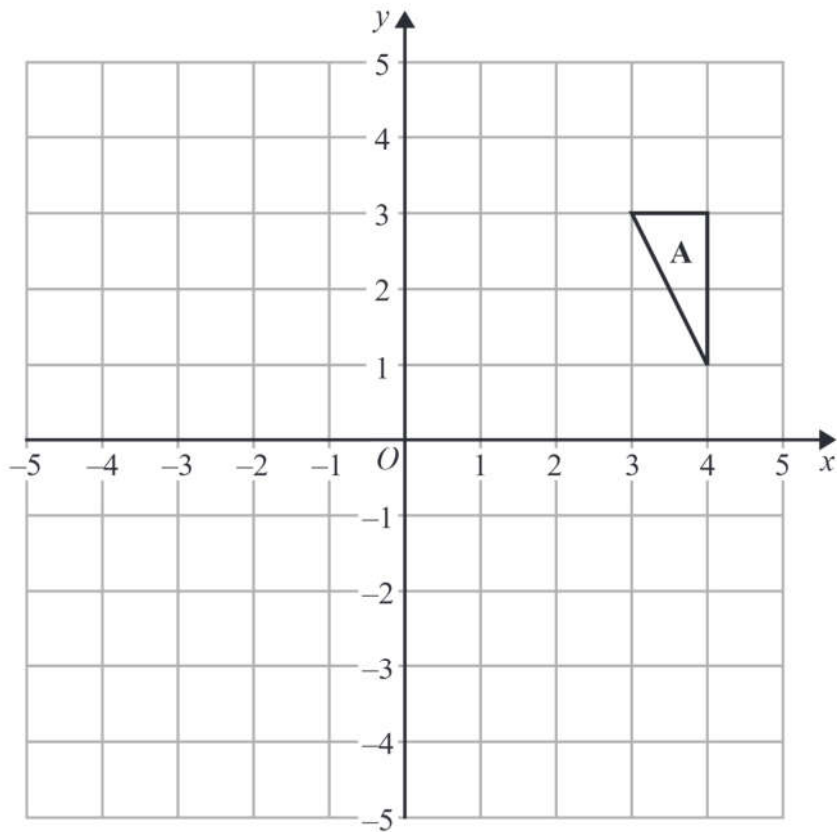


Work out an estimate for the number of these students with a height greater than 160 cm.

(Total for Question 8 is 2 marks)



- 9 The diagram shows triangle **A** drawn on a grid.



Kyle reflects triangle **A** in the x -axis to get triangle **B**.
He then reflects triangle **B** in the line $y = x$ to get triangle **C**.

Amy reflects triangle **A** in the line $y = x$ to get triangle **D**.
She is then going to reflect triangle **D** in the x -axis to get triangle **E**.

Amy says that triangle **E** should be in the same position as triangle **C**.

Is Amy correct?
You must show how you get your answer.

(Total for Question 9 is 3 marks)



10 The table shows some information about eight planets.

Planet	Distance from Earth (km)	Mass (kg)
Earth	0	5.97×10^{24}
Jupiter	6.29×10^8	1.898×10^{27}
Mars	7.83×10^7	6.42×10^{23}
Mercury	9.17×10^7	3.302×10^{23}
Neptune	4.35×10^9	1.024×10^{26}
Saturn	1.28×10^9	5.68×10^{26}
Uranus	2.72×10^9	8.683×10^{25}
Venus	4.14×10^7	4.869×10^{24}

(a) Write down the name of the planet with the greatest mass.

.....
(1)

(b) Find the difference between the mass of Venus and the mass of Mercury.

..... kg

(1)

Nishat says that Neptune is over a hundred times further away from Earth than Venus is.

(c) Is Nishat right?

You must show how you get your answer.

(2)

(Total for Question 10 is 4 marks)



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11 Solve $\frac{3x - 2}{4} - \frac{2x + 5}{3} = \frac{1 - x}{6}$

$x = \dots\dots\dots$

(Total for Question 11 is 4 marks)

