

Answer ALL TWENTY FOUR questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Show that $4\frac{2}{3} \div 1\frac{1}{9} = 4\frac{1}{5}$

(Total for Question 1 is 3 marks)

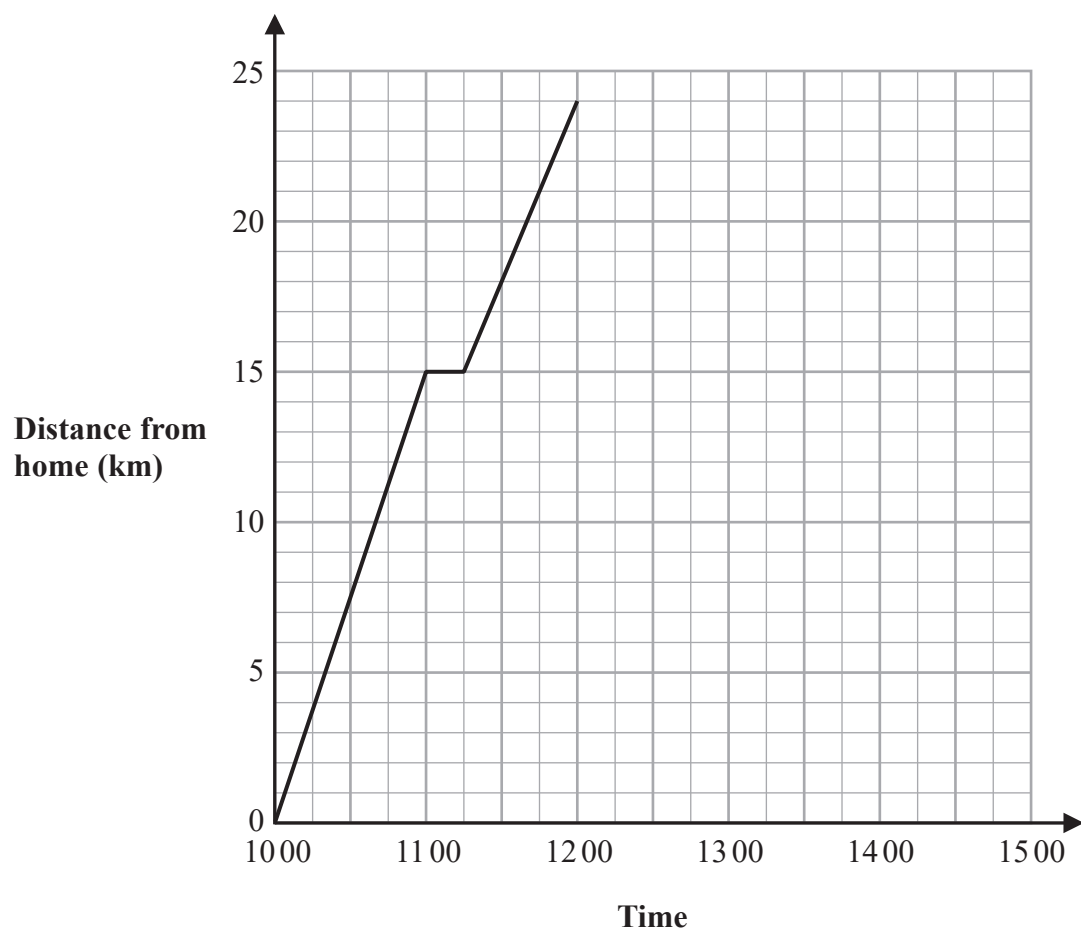
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2 Jalina left her home at 1000 to cycle to a park.
On her way to the park, she stopped at a friend's house and then continued her journey to the park.
Here is the distance-time graph for her journey to the park.



(a) On her journey to the park, did Jalina cycle at a faster speed before or after she stopped at her friend's house?
Give a reason for your answer.

.....

.....

.....

(1)



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Jalina stayed at the park for 45 minutes.

She then cycled, without stopping, at a constant speed of 16 km/h from the park back to her home.

(b) Show all this information on the distance-time graph.

(2)

(c) Work out Jalina's average cycling speed, in kilometres per hour, for the complete journey to the park and back.

Do **not** include the times when she was not cycling in your calculation.

Give your answer correct to 1 decimal place.

..... km/h
(3)

(Total for Question 2 is 6 marks)



3 (a) Simplify $e^9 \div e^5$

.....
(1)

(b) Simplify $(y^2)^8$

.....
(1)

(c) Expand and simplify $(x + 9)(x - 2)$

.....
(2)

(d) Factorise fully $16c^4p^2 + 20cp^3$

.....
(2)

(Total for Question 3 is 6 marks)



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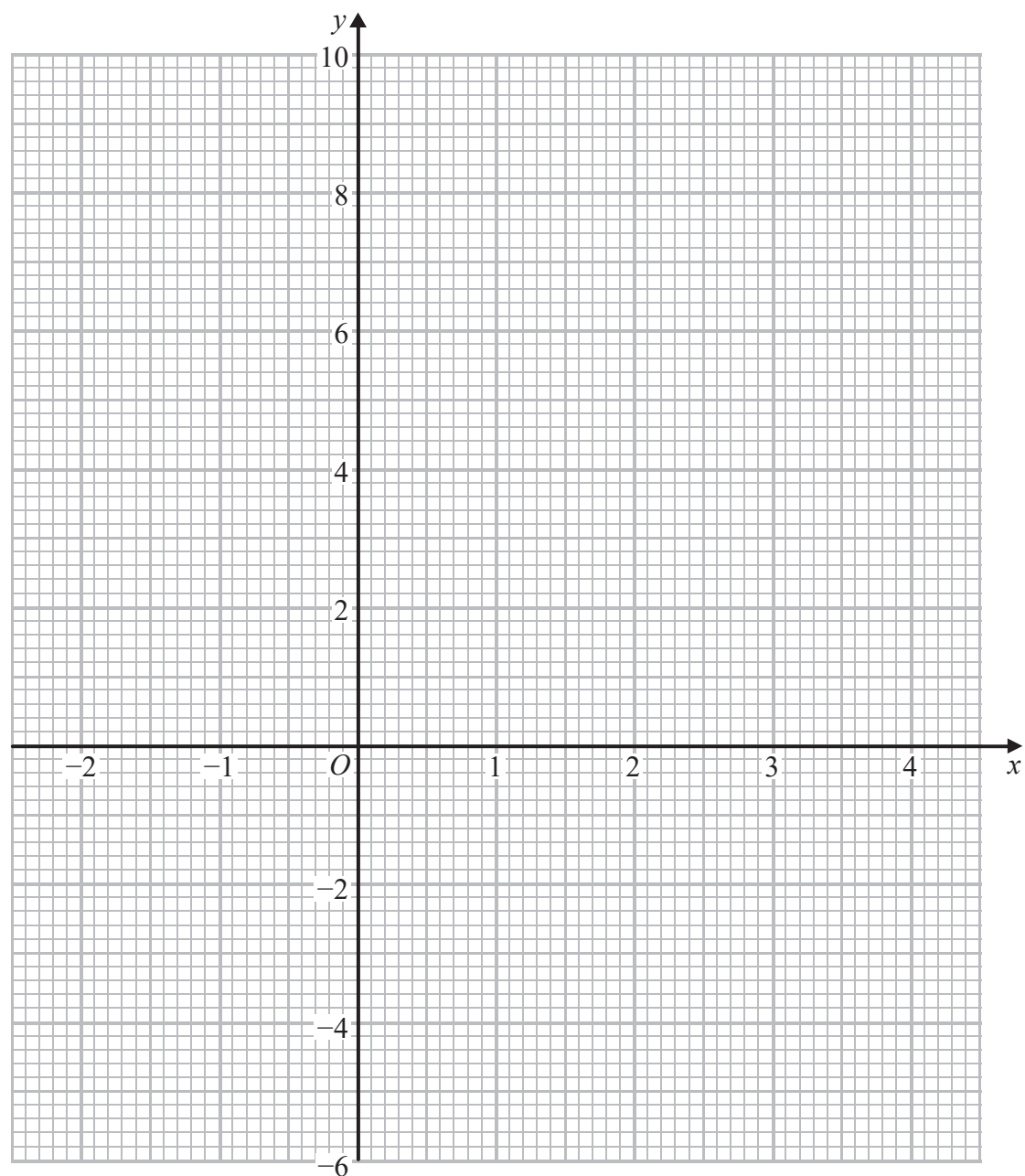
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4 (a) Complete the table of values for $y = x^2 - 3x - 1$

x	-2	-1	0	1	2	3	4
y			-1		-3		3

(2)

(b) On the grid, draw the graph of $y = x^2 - 3x - 1$ for all values of x from -2 to 4



(2)

(Total for Question 4 is 4 marks)



5 Becky has a biased 6-sided dice.

The table gives information about the probability that, when the dice is thrown, it will land on each number.

Number	1	2	3	4	5	6
Probability	$2x$	0.18	$2x$	$3x$	0.26	x

Becky is going to throw the dice 200 times.

Work out an estimate for the number of times that the dice will land on an even number.

.....
(Total for Question 5 is 4 marks)



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6 The diagram shows a solid cuboid made from wood.

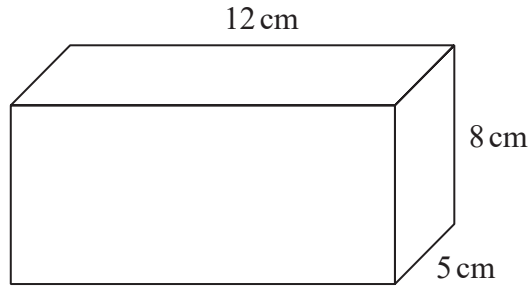


Diagram **NOT** accurately drawn

The wood has density 0.7 g/cm^3

Work out the mass of the cuboid.

..... grams

(Total for Question 6 is 3 marks)



7 (a) Write 5.7×10^6 as an ordinary number.

.....
(1)

(b) Write 0.004 in standard form.

.....
(1)

(c) Work out $\frac{2 \times 10^4 + 3 \times 10^5}{6.4 \times 10^{-2}}$

.....
(2)

(Total for Question 7 is 4 marks)

8 On 1st January 2016 Li bought a boat for \$170 000
The value of the boat depreciates by 8% per year.

Work out the value of the boat on 1st January 2019
Give your answer correct to the nearest dollar.

\$

(Total for Question 8 is 3 marks)

