Edexcel GCSE Mathematics (Linear) – 1MA0

Student Bounty.com UPPER AND LOWER **BOUNDS**

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser. Tracing paper may be used.

Items included with question papers



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number. Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need. Calculators may be used.

Information

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Questions labelled with an asterisk (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

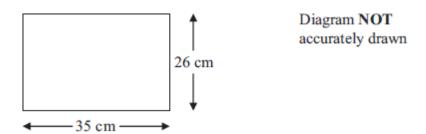
	The weight of a bag of potatoes is 25 kg, correct to the nearest kg.	1.
	(a) Write down the smallest possible weight of the bag of potatoes.	
(1)	kg (b) Write down the largest possible weight of the bag of potatoes.	
(1) marks)	kg (Total 2	
	The length of a line is 63 centimetres, correct to the nearest centimetre. (a) Write down the least possible length of the line.	2.
(1)	centimetres (b) Write down the greatest possible length of the line.	
(1) marks)	centimetres (Total 2	

	(b)	Write down the upper bound of the width. Calculate the upper bound for the area of the rectangle.	(1) cm
	(b)		cm
	(b)		cm
		Write down the upper bound of the width.	(1)
		Write down the upper bound of the width.	(1)
	(a)		
4.		gth of a rectangle is 30 cm, correct to 2 significant figures lth of a rectangle is 18 cm, correct to 2 significant figures.	
			(Total 2 marks)
	Calcul	ate the upper bound for the perimeter of the field.	

A field is in the shape of a rectangle.

3.

5.



The length of the rectangle is 35 cm correct to the nearest cm. The width of the rectangle is 26 cm correct to the nearest cm.

Calculate the upper bound for the area of the rectangle. Write down all the figures on your calculator display.

 cm ²
(Total 3 marks)

6.	A field is in the shape of a rectangle. The width of the field is 28 metres, measured to the nearest metre.
	(a) Work out the upper bound of the width of the field.
	metres (1)
The	e length of the field is 145 metres, measured to the nearest 5 metres.
(b)	Work out the upper bound for the perimeter of the field.
	metres (3)
	(Total 4 marks)
7.	Steve measured the length and the width of a rectangle. He measured the length to be 645 mm correct to the nearest 5 mm. He measured the width to be 400 mm correct to the nearest 5 mm.
	Calculate the lower bound for the area of this rectangle. Give your answer correct to 3 significant figures.
	(Total 3 marks)

The average fuel consumption (c) of a car, in kilometres per litre, is given by the formula
$c = \frac{d}{f}$
where d is the distance travelled, in kilometres, and f is the fuel used, in litres.
d = 163 correct to 3 significant figures. f = 45.3 correct to 3 significant figures.
By considering bounds, work out the value of c to a suitable degree of accuracy. You must show all of your working and give a reason for your final answer.

9. The voltage V of an electronic circuit is given by the form	mula
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$$V = IR$$

where *I* is the current in amps and *R* is the resistance in ohms.

Given that V = 218 correct to 3 significant figures,

R = 12.6 correct to 3 significant figures,

calculate the lower bound of I.

(Total 3 marks)

*10.
$$m = \frac{\sqrt{S}}{t}$$

s = 3.47 correct to 2 decimal places.

t = 8.132 correct to 3 decimal places.

By considering bounds, work out the value of m to a suitable degree of accuracy.

You must show all your working and give a reason for your final answer.

(Total 5 marks)