

GCSE

Mathematics: Non Calculator

Paper 3

Specification EDEXCEL A

Name

Time allowed

- 30 minutes.

For this paper you must have

- A ballpoint pen with black ink.
- A ruler with millimetre measurements.

Instructions

- Do all rough work in this question booklet.
- Answer **all** the questions.
- You **must** show your working for all questions.

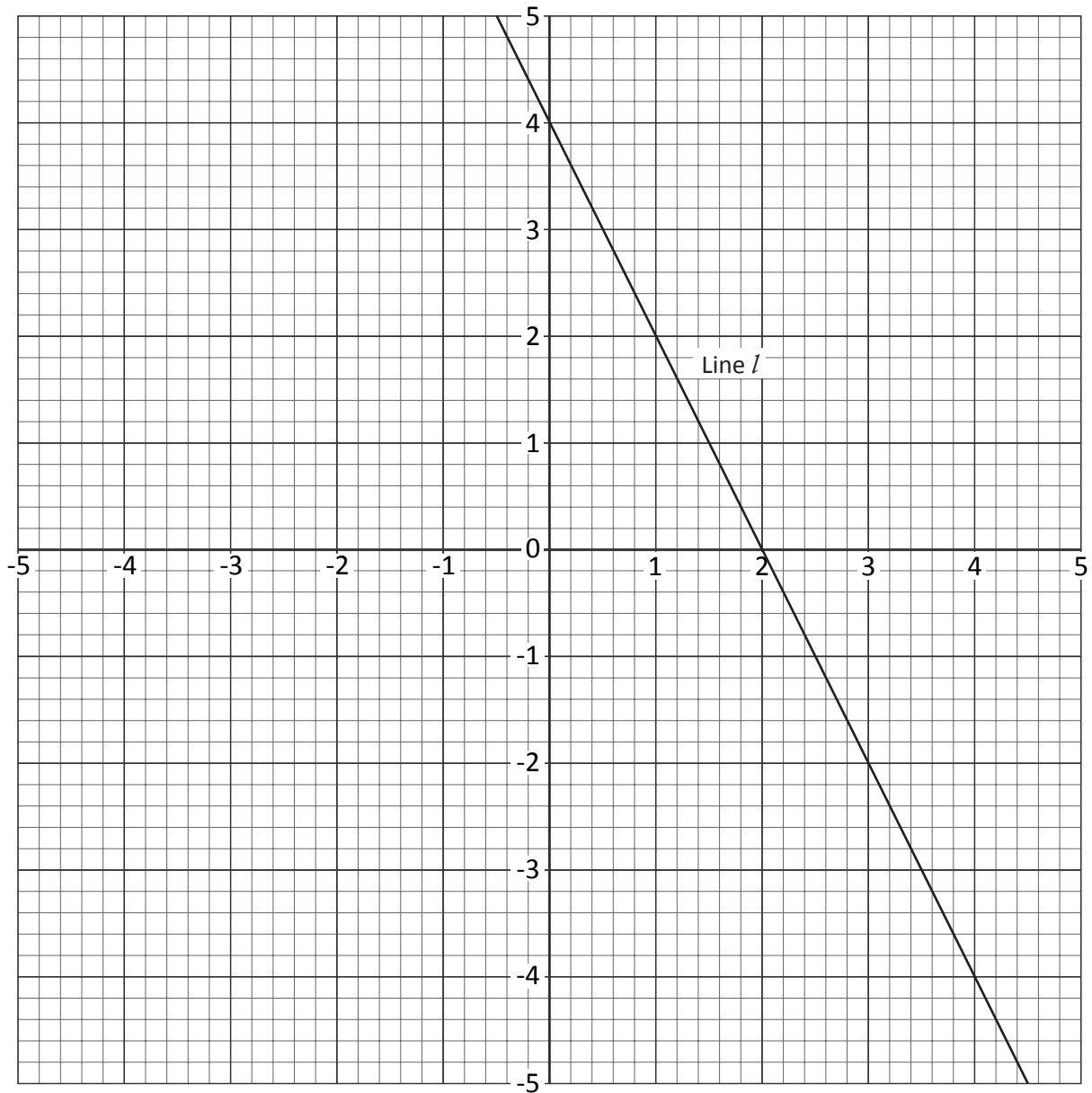
The maximum mark for this paper is 40.

Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	

Grade Boundaries

A* **31**
A **26**
B **21**
C **15**
D **8**

1. The graph shows line l .



- (a) Write down the equation of line l .

_____ (2 marks)

- (b) Line m is perpendicular to line l . Write down a possible equation for line m .

_____ (1 mark)

(c) Line n passes through the points (2, 2) and (4, 1).

(i) Calculate the gradient of line n .

_____ (2 marks)

(ii) Hence, write down the equation of line n .

_____ (2 marks)

2. Evaluate

(a) 4^2

_____ (1 mark)

(b) 4^0

_____ (1 mark)

(c) $\left(\frac{4^2}{4}\right)^{\frac{3}{2}}$

_____ (3 marks)

Turn over for Question 3 ►

3. The ingredients to make 12 cupcakes are shown in the box.

Flour	400g
Eggs	2
Sugar	250g
Butter	200g

(a) Work out how much butter would be needed to make 9 cupcakes.

_____ (2 marks)

(b) (i) Billy has the 300g flour, 3 eggs, 100g sugar and 100g butter.
Calculate the maximum number of cupcakes that Billy can make with these ingredients.

_____ (3 marks)

(ii) In a supermarket sale, the price of flour is reduced by 25%.
Billy brought a 300g of flour in the sale for £1.14. Calculate the original price of the bag of flour.

_____ (2 marks)

4. Here is a table using powers of 3.

Power of 3	3^0	3^1	3^2	3^3	3^4	3^5	3^6	3^7	3^8	...
Value	1	3	9	27	81	243	729	2187	6561	...
Remainder when the value is divided by 11	1	3	9	5	4	1	3	9	5	...

(a) The repeating pattern of remainders continues.

What is the remainder when 3^{2014} is divided by 11?
Explain your answer.

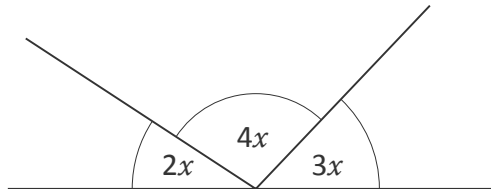
_____ (3 marks)

(b) Use the table to work out the value of 9^4 .

_____ (1 mark)

Turn over for Question 5 ►

5. The diagram shows 3 angles on a straight line.

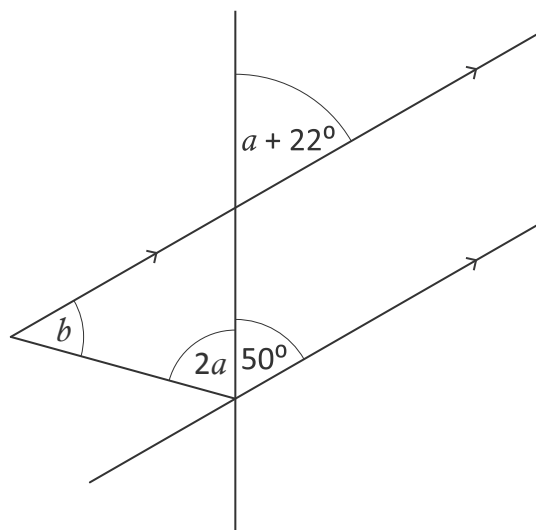


Not drawn accurately

Set up and solve an equation in x to work out the value of the largest angle.

(4 marks)

6. The diagram shows two parallel lines which are both intersected by a third line.

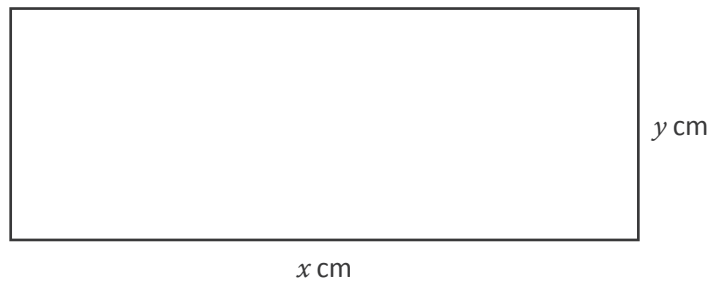


Not drawn accurately

Work out the value of b .

(4 marks)

7. A rectangle has length x cm and width y cm.



Not drawn accurately

It is given that $x : y = 3 : 1$.

- (a) Write down an equation connecting x and y .

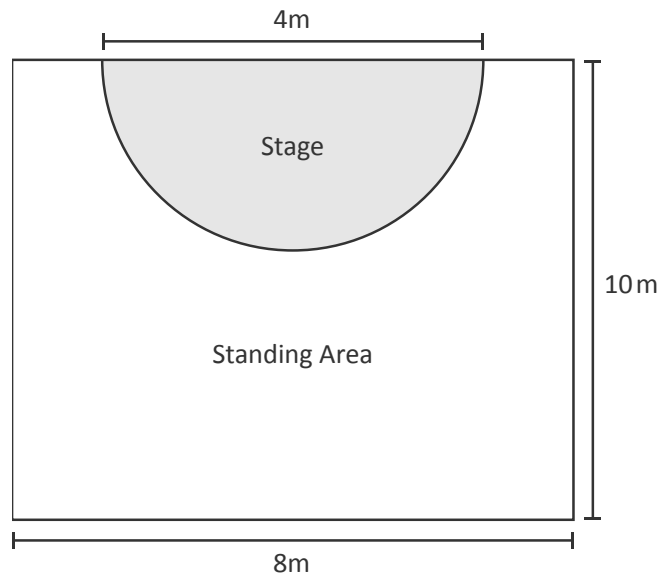
_____ (1 mark)

- (b) Given that $y = 2$ cm, calculate the perimeter of the rectangle.

_____ (2 marks)

Turn over for Question 8 ►

8. A hall has width 8 metres and length 10 metres.
A stage in the hall is a semicircle with diameter 4 metres.



Not drawn accurately

- (a) Calculate the area of the standing area, giving your answer in terms of π .

_____ (4 marks)

- (b) The maximum number of people allowed in the standing area can be calculated by this formula

$$\text{Maximum number} = \frac{140 \times \text{Standing area in m}^2}{(40 - \pi)}$$

Calculate the maximum number of people allowed in the standing area.

_____ (2 marks)

END OF QUESTIONS