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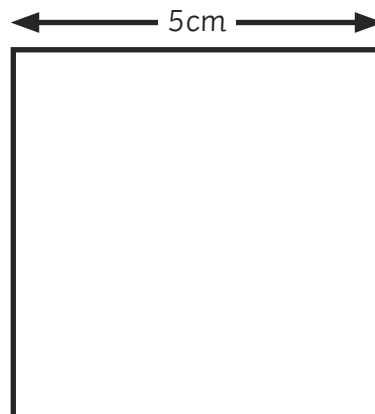
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GCSE Maths (Calculator)

Practice Foundation Paper 2

AQA Specification

Time: 1 hour 30 minutes (80 Marks)

Name: _____

Class: _____



Maths

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1. Circle the correct prime factorisation of 180.

[1 mark]

- A) 18×10 B) $1 \times 9 \times 20$ C) $2^2 + 3^2 + 5$ D) $2^2 \times 3^2 \times 5$

2. Which of these shapes has the smallest number of sides?

[1 mark]

- A) Hexagon B) Trapezium C) Pentagon D) Octagon

3. For $x = 4$, circle the correct statement.

[1 mark]

- A) $x < 3.5$ B) $x > 9$ C) $x \geq 0$ D) $x \leq -5$

4. Solve $x + 9 = 3$

[1 mark]

- A) $x = 6$ B) $x = -6$ C) $x = 12$ D) $x = -12$

5. a. Solve the inequality:

[3 marks]

$$-5 < 2x + 3 \leq 7$$

b. Hence represent the inequality $-5 < 2x + 3 \leq 7$ on the number line.

[2 marks]



6. The cost of 2.5 litres of petrol in the United Kingdom is £1.70.

The cost of 1 US gallon of petrol in the United States is \$3.30.

$$£1 = \$1.42$$

$$1 \text{ litre} = 0.26 \text{ US gallons}$$

Is petrol cheaper in the United Kingdom or United States? You must show all your working.

[4 marks]



7. a. Use your calculator to work out $\frac{3.7 \times 195}{0.22^2}$. Write down all the numbers on your calculator display.
[1 mark]

- b. Round your answer from part a. to 3 significant figures.

[1 mark]

8. A set menu at a restaurant has the following options:

Starter	Main Course
soup	beef
prawn cocktail	chicken
garlic bread	fish
	vegetarian

How many different ways are there of choosing one starter and one main course?

[2 marks]

9. Here are four number cards:

9	2	7	6
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- a. Write down the largest four-digit number that can be made using each card only once.

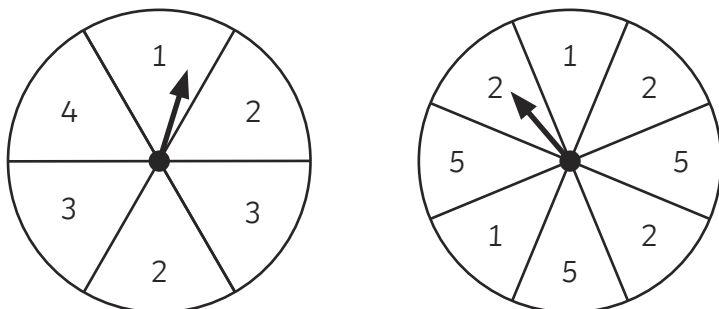
[1 mark]

- b. Write down the smallest four-digit even number that can be made using each card only once.

[1 mark]



10. Here are two fair spinners. In an experiment, each spinner is spun once and the product of the numbers on each spinner is calculated.



a. Draw a sample space diagram to show all possible outcomes of this experiment.

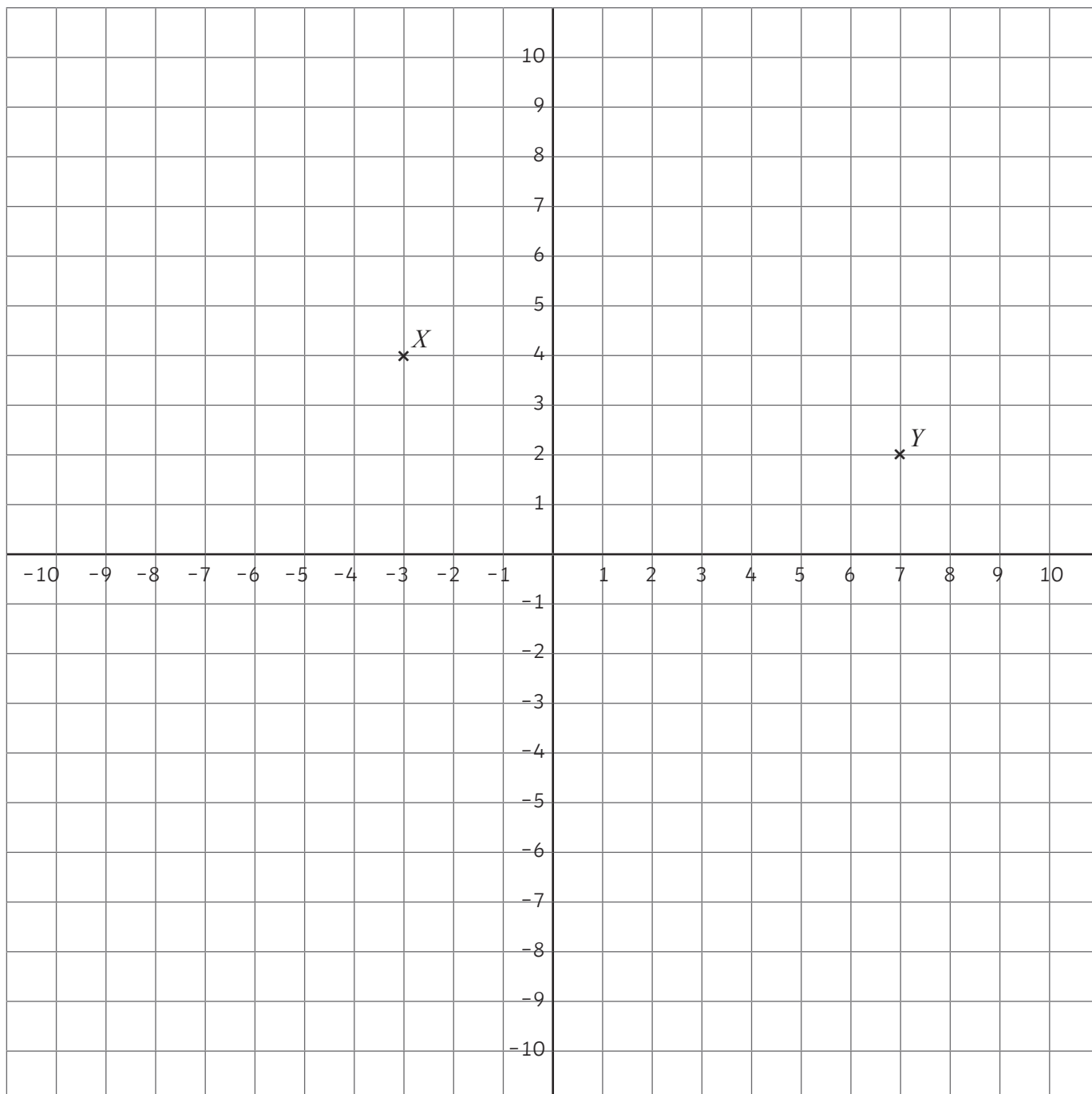
[2 marks]

b. What is the probability that the product is greater than 8?

[2 marks]



11.



a. Write down the coordinates of the point labelled X .

[1 mark]

(_____ , _____)

b. Plot the coordinate $(0, -5)$ on the diagram.

[1 mark]

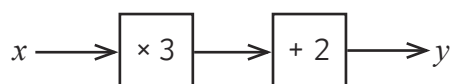
c. Find the midpoint of the coordinates marked X and Y .

[2 marks]

(_____ , _____)



12. A function machine is given as:



a. Calculate the value of y when $x = -4$

[1 mark]

b. Calculate the value of x when $y = 23$

[2 marks]

c. Ben says that when you double the value of x , the value of y also doubles.
Show that Ben is incorrect.

[2 marks]

13. Here is a scale plan of a dining room floor.

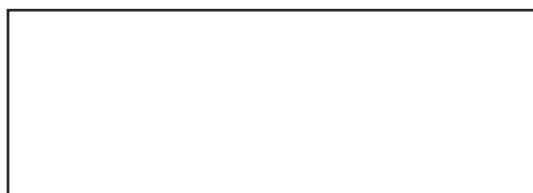


Diagram drawn to scale

Scale: 1cm represents 2m

Pollyanna wants to cover her dining room floor with rectangular tiles.

Each tile is 40cm wide and 75cm long.

She has 200 tiles. Does she have enough tiles to cover the floor and have no gaps?

You must show your working.

[3 marks]

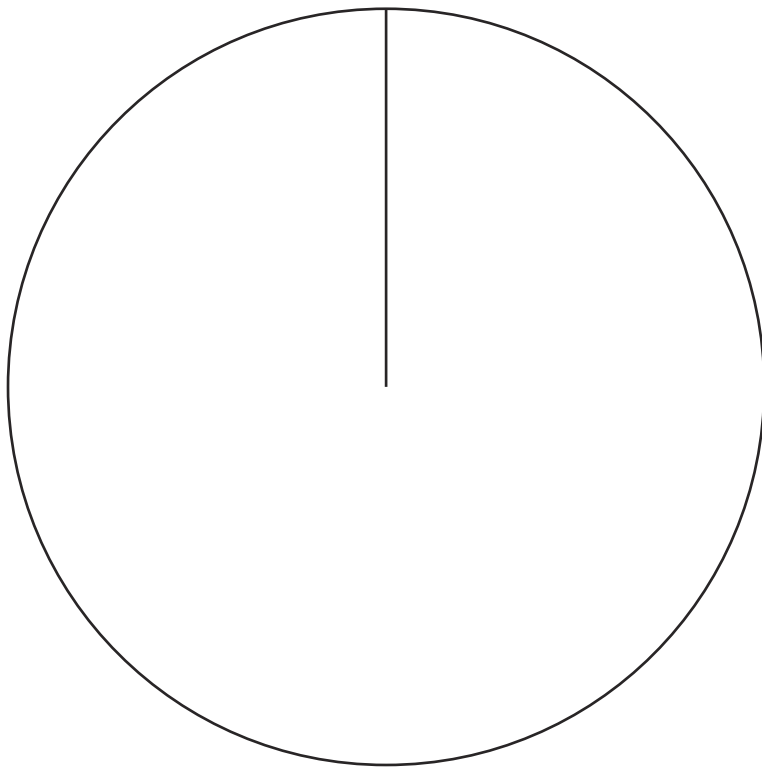


14. The table gives information about the preferred book genre of 20 people.

Favourite Book Genre	Comedy	Thriller	Romance	Horror	Factual
Frequency	3	5	4	7	1

Construct a pie chart showing this information.

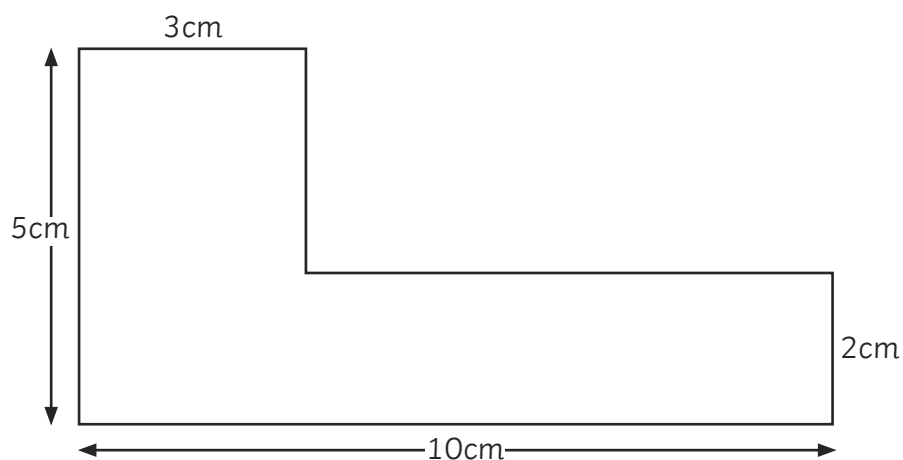
[3 marks]



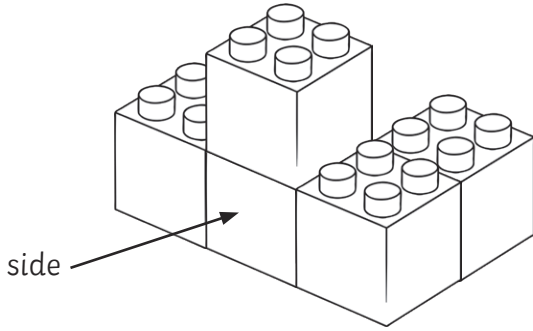
15. Calculate the area of the shape.

Give the units of your answer.

[3 marks]



16. The diagram shows a solid shape made out of 5 cubes.

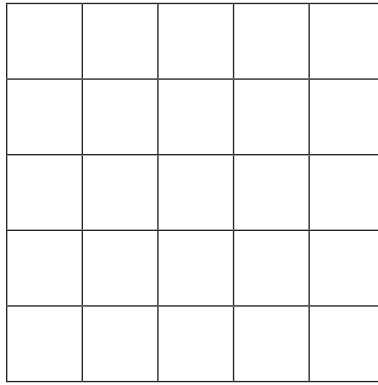
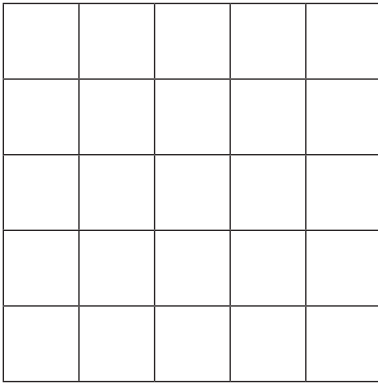


On the grids below, draw the plan and side elevation of the shape.

[2 marks]

Plan

Side Elevation



17. Rearrange the equation $3(x + p) = y$ to make x the subject.

[3 marks]



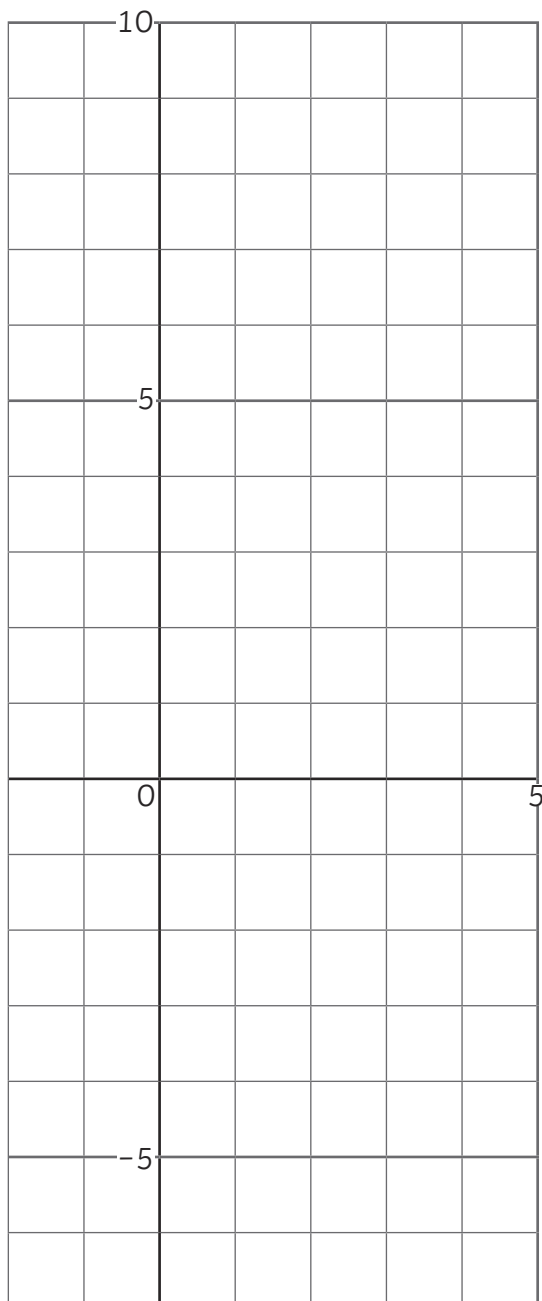
18. a. Complete the table of values for $y = 2x^2 - 6x - 1$

[2 marks]

x	-1	0	1	2	3	4
y		-1		-5		

b. On the grid below, draw the graph of $y = 2x^2 - 6x - 1$ for $-1 \leq x \leq 4$

[2 marks]



c. Use your graph to estimate the value(s) of x when $y = -4$.

[2 marks]

$x =$ _____



19. The diagram shows the position of two boats, P and Q.

The bearing of a third boat, R, from P is 055° .

The bearing of R from Q is 290° .

In the space below, draw an accurate diagram to show the position of boat R. Mark the position of the boat with a cross (×).

[3 marks]



20. The table gives information about the ages of 30 employees.

Age, x in years	Frequency
$18 \leq x < 24$	4
$24 \leq x < 30$	5
$30 \leq x < 40$	8
$40 \leq x < 55$	9
$55 \leq x < 72$	4

Calculate an estimate for the mean age of the employees.

[3 marks]

_____ years



21. Lily is going to invest £2000. Her bank offers two different types of bank account:

Bank Account A
£50 subtracted from initial investment as an opening fee.
3% compound interest per annum

Bank Account B
No opening fee
2.5% simple interest per annum

She is going to invest her money for three years. Which bank account should she choose to ensure she receives the most money at the end of this time? Show all your working.

[3 marks]

22. There are 800 students at a school. Alexa is organising a stall for the summer fete which will sell different types of sandwiches. She takes a sample of 50 students and asks them what their favourite type of sandwich is.

The table shows information about the results.

Type of Sandwich	Frequency
Cheese	16
Ham	13
Peanut Butter	11
Cucumber	10

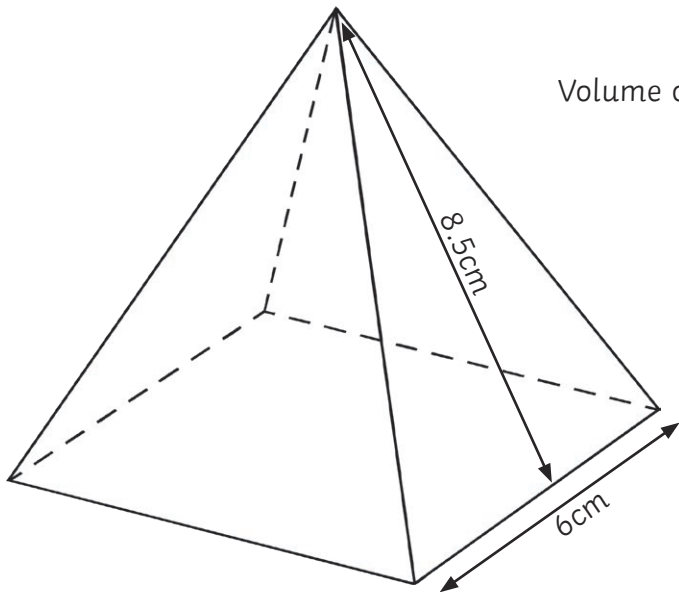
Work out how many cheese sandwiches Alexa should make for her stall.

State any assumptions you have made.

[3 marks]



23. The diagram shows a wooden toy in the shape of a pyramid with a square base of side length 6cm. The perpendicular height of each triangular face is 8.5cm. The wood has a density of 300g/cm³.



Volume of a pyramid = $\frac{1}{3}$ × area of base × vertical height

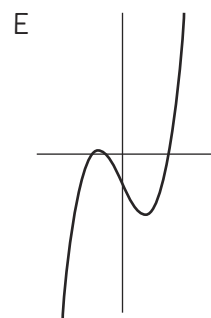
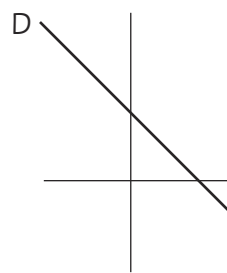
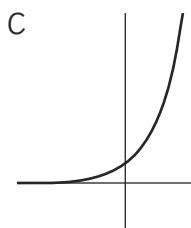
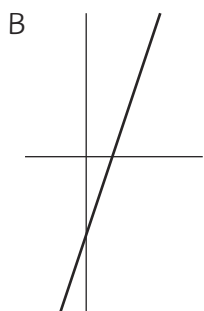
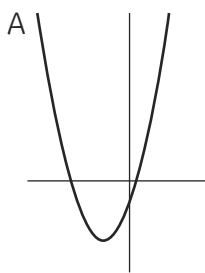
Calculate the mass of the wooden pyramid, giving your answer correct to 1 decimal place. [4 marks]

_____ g

24. Complete the table, matching each graph to its equation:

[3 marks]

Equation	Graph
$y = 3x - 4$	
$y = 2^x$	
$y = x^3 - 2x$	
$y = x^2 + 3x - 1$	
$y = 3 - x$	



25. Katy wants to carry out a survey on the subjects studied by 80 students in a college.

A total of 36 students study physics.

38 students study maths but not physics.

12 students study both maths and physics.

One of the students who studies maths is picked at random. What is the probability that they also study physics?

[4 marks]

26. Jaz buys a house for £250 000. It had increased in value by 3% from the previous year. Work out the original value of the house, giving your answer correct to 2 decimal places.

[2 marks]

£_____

27. Alisha and Rupert share some sweets in the ratio 5:7. Rupert gives 3 sweets to Alisha and now the ratio is 7:8. How many sweets did each have at the start?

[3 marks]

Alisha _____ Rupert _____

