

Candidate Name	Centre Number	Candidate Number
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**GCSE**

185/07

**MATHEMATICS (2 Tier)**

**FOUNDATION TIER**

**PAPER 1**

P.M. MONDAY, 18 May 2009

2 hours

<b>CALCULATORS ARE NOT TO BE USED FOR THIS PAPER</b>
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For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	10	
2	5	
3	7	
4	6	
5	4	
6	3	
7	5	
8	5	
9	6	
10	6	
11	5	
12	6	
13	6	
14	6	
15	7	
16	7	
17	6	
<b>TOTAL MARK</b>		

**INSTRUCTIONS TO CANDIDATES**

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

Take  $\pi$  as 3.14.

**INFORMATION FOR CANDIDATES**

You should give details of your method of solution when appropriate.

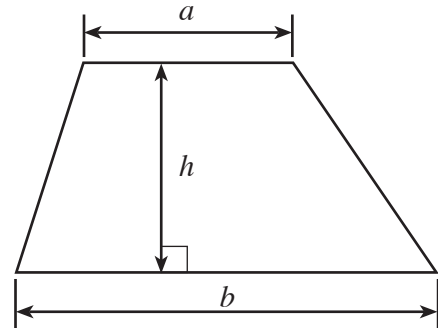
Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

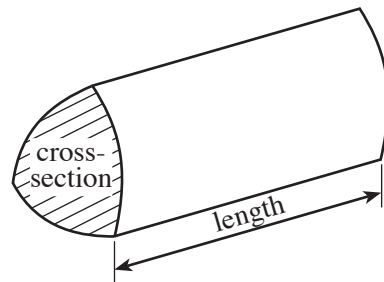
The number of marks is given in brackets at the end of each question or part-question.

**Formula List**

**Area of trapezium** =  $\frac{1}{2} (a + b)h$



**Volume of prism** = area of cross-section  $\times$  length



1. (a) (i) Write down, in figures, the number eight thousand, two hundred and four.

.....

- (ii) Write down, in words, the number 4 600 000.

.....

[2]

- (b) Add together 78 and 96.

.....

.....

.....

[1]

- (c) Write 8726

- (i) correct to the nearest 10,

.....

- (ii) correct to the nearest 100.

.....

[2]

- (d) Write down the value of the 6 in the number 9657.

.....

[1]

- (e) Write down all the factors of 15.

.....

.....

.....

[2]

- (f) How many notebooks costing £2.95 each can be bought with a £20 note?

.....

.....

.....

[2]

2. (a) Write down the next term in **each** of the following sequences.

(i) 4, 11, 18, 25, .....

(ii) 90, 84, 78, 72, .....

.....  
 .....

[2]

(b) Write 78% as a decimal .....

Write  $\frac{3}{4}$  as a decimal .....

Write 78%,  $\frac{3}{4}$  and 0.73 in ascending order.

.....  
 .....  
 .....  
 .....

[3]

3. Each of 30 pupils wrote down how many children, including themselves, were in their family. The following are their results.

1	3	4	3	2	5	1	4	2	2
2	4	1	2	3	3	5	2	1	3
3	2	6	2	1	2	4	3	2	6

(a) Complete the frequency table below.

Number of children	Tally	Frequency
1		
2		
3		
4 or more		

[2]

(b) Write down the mode. ....

[1]

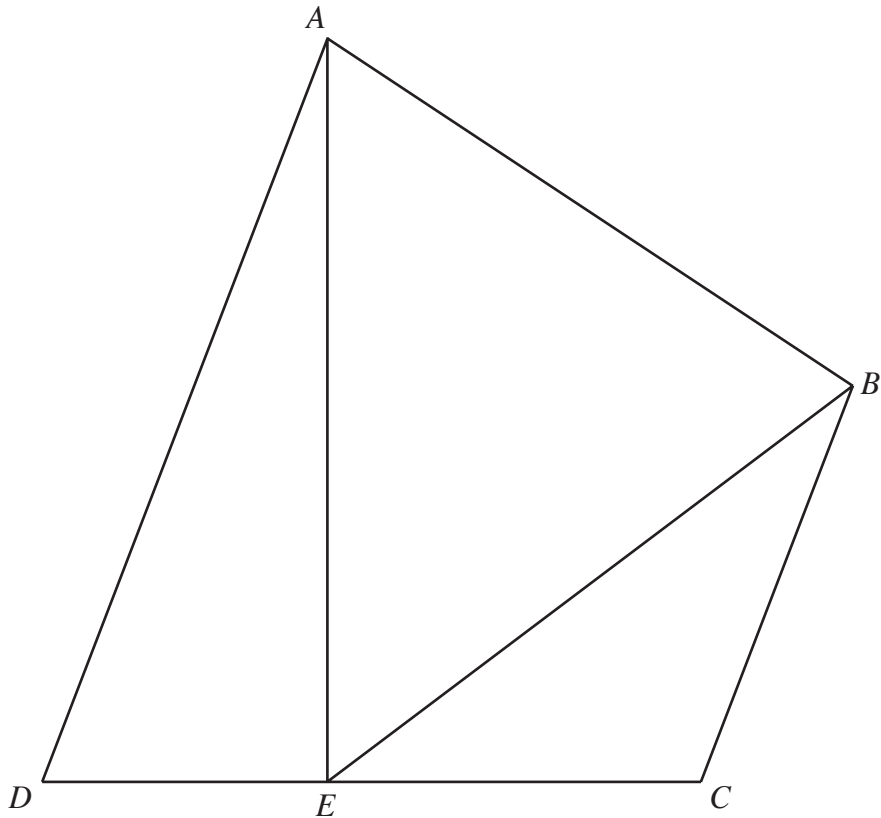
(c) Using the squared paper on the next page, draw a suitable bar chart for the data given in the table.

[4]

**For use with question 3.**



4.



Using the above diagram,

(a) measure the length of  $BE$ ,

..... cm

[1]

(b) name the line which is perpendicular to  $DC$ ,

.....

[1]

(c) name the line which is parallel to  $AD$ ,

.....

[1]

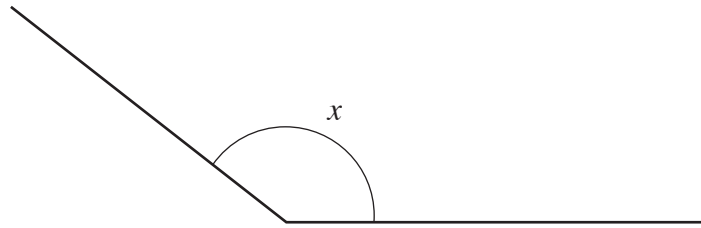
(d) measure the size of

(i) angle  $ADE$  .....<sup>o</sup>,

(ii) angle  $BCE$  .....<sup>o</sup>.

[2]

- (e) Circle the special name which describes the angle marked  $x$ .



acute angle

obtuse angle

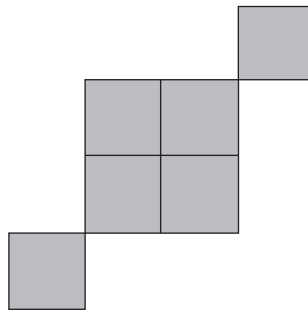
right-angle

reflex angle

[1]

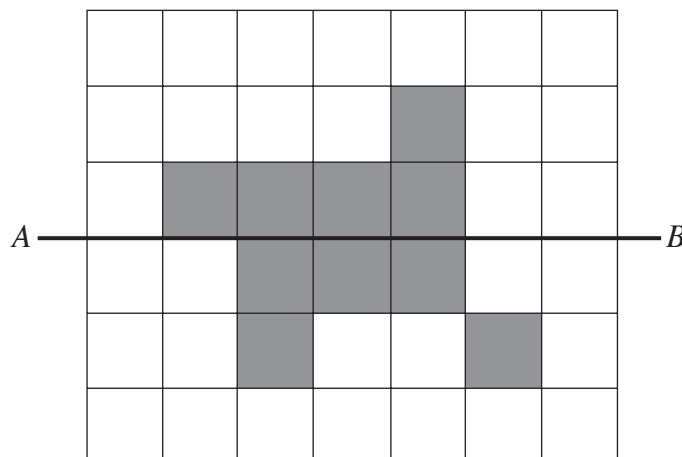
5. (a) Draw all the lines of symmetry on the diagram below.

[2]

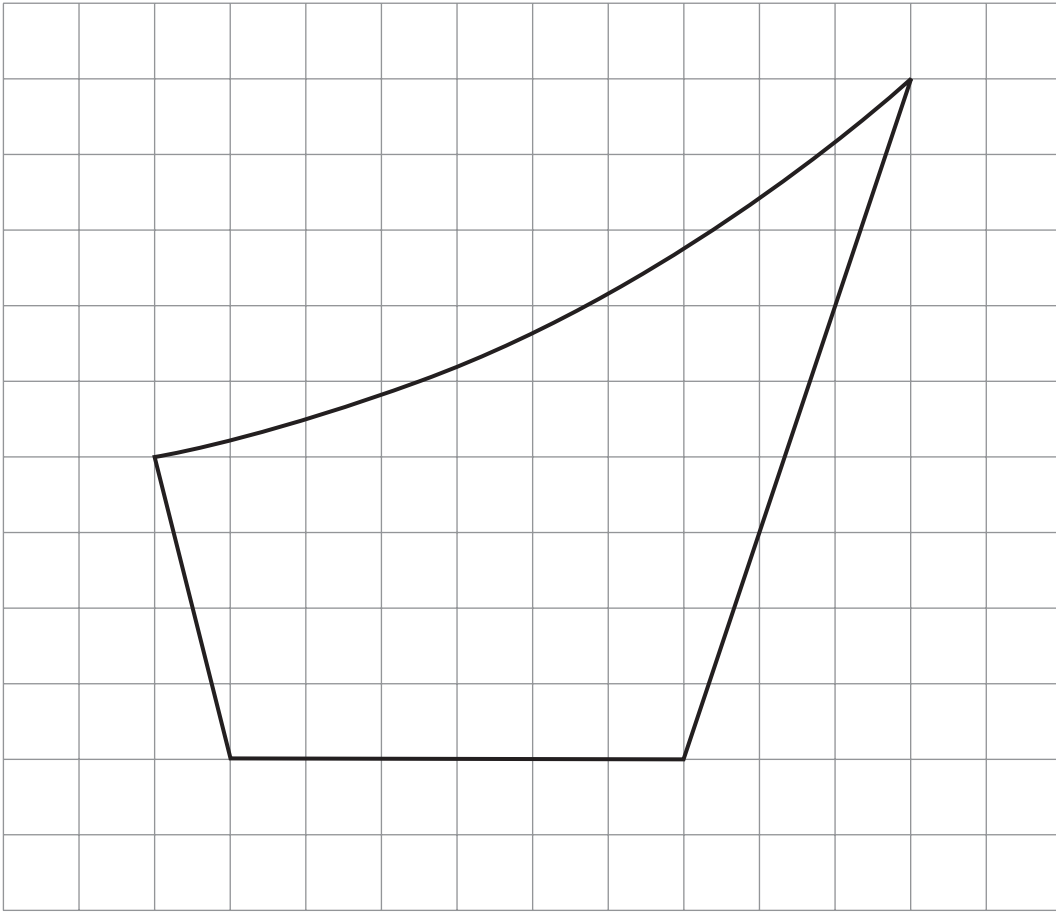


- (b) By shading as few squares as possible, complete the shaded pattern below so that  $AB$  is a line of symmetry.

[2]



6.



The above shape has been drawn on a centimetre square grid.

By counting squares, estimate the area of the above shape and write down the units of your answer.

.....

.....

.....

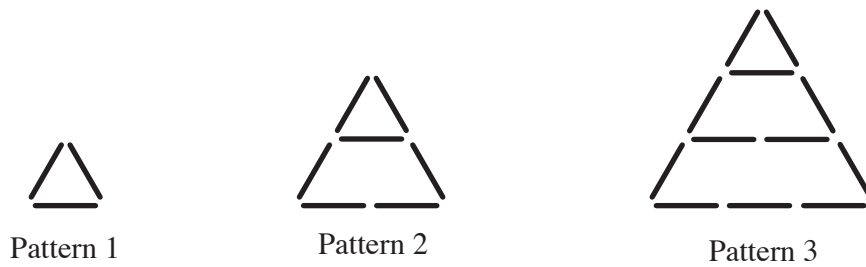
.....

Area of the shape = .....

[3]



7. The following patterns have been made using rods.



(a) Draw Pattern 4 in the space below.

[1]

(b) Complete the following table.

Pattern number	1	2	3	4	5
Number of rods	3	7	12		

[2]

(c) Without drawing it, write down the number of rods in Pattern 6.

.....

.....

.....

[2]

8. (a) Solve

(i)  $4x = 24$ ,

.....  
.....

(ii)  $x + 6 = 14$ .

.....  
.....

[2]

(b) Simplify  $5a + a + 3a$ .

.....  
.....

[1]

(c) Given that  $W = 3P + 2R$ , find the value of  $W$  when  $P = 5$  and  $R = 4$ .

.....  
.....  
.....

[2]

9. (a) Each of 76 pupils paid £54 to go on a school trip.  
Calculate the total amount paid by the pupils.

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.....

[3]

- (b) Calculate  $\frac{3}{8}$  of 48.

.....

.....

.....

[2]

- (c) One of the following numbers is the answer to  $57 \times 38$ .  
Without working out the full multiplication, write down which one is the answer.

2163

2164

2165

2166

2167

.....

[1]

10. (a) Look at the following list of numbers:

60, 61, 62, 63, 64, 65, 66, 67, 68

Using only the numbers in the list,

(i) write down the cube number,

.....

(ii) write down all the prime numbers.

.....

[3]

(b) Find the value of

(i)  $2^3 \times 5^2$ ,

.....

.....

.....

.....

[2]

(ii)  $8 \cdot 3 - 5 \cdot 67$ .

.....

.....

.....

.....

[1]

11. (a) Peter buys  $x$  sweets and Mary buys 6 sweets.  
Write down, in terms of  $x$ , the total number of sweets they buy.

.....  
[1]

- (b) Rulers cost 25 pence each.  
Write down, in terms of  $y$ , the cost of  $y$  rulers.

.....  
[1]

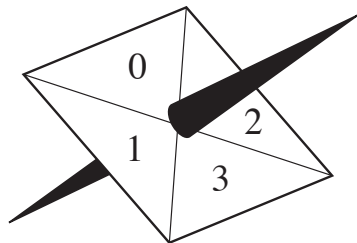
- (c) A car is  $b$  metres long and a second car is 2 metres shorter than it.  
Write down, in terms of  $b$ , the length of the second car.

.....  
[1]

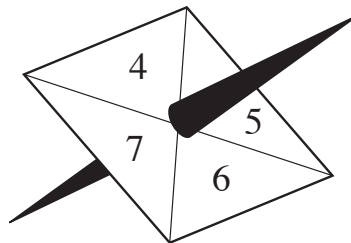
- (d) Simplify  $3r - 4t + 6r + 7t$ .

.....  
.....  
.....  
.....  
.....  
[2]

12. Two square-shaped spinners A and B have numbers written on them.



Spinner A



Spinner B

In a game, a player spins both spinners and multiplies the two numbers showing on the spinners to get the score for the game.

For example, if the number on spinner A is 2 and the number on spinner B is 5, the player works out  $2 \times 5 = 10$  and the player scores 10.

(a) Complete the following table to show all the possible scores.

Spinner B	7	.....	.....	.....	.....
	6	.....	.....	.....	.....
	5	0	5	10	15
	4	0	4	8	12
		0	1	2	3
		Spinner A			

[2]

(b) (i) What is the probability that a player scores 0?

.....

(ii) What is the probability that a player does not score 0?

.....

[3]

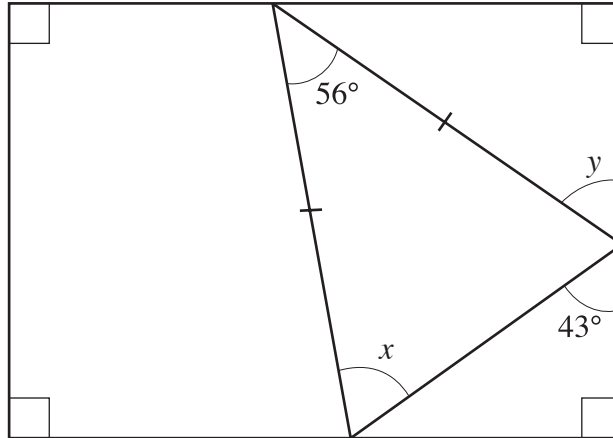
(c) A player wins a prize by getting a score of 8 or less. Brian plays the game once. What is the probability that he wins a prize?

.....

.....

[1]

13.



(a) Find the size of the angle marked  $x$ .

.....

.....

.....

.....

[3]

(b) Find the size of the angle marked  $y$ .

.....

.....

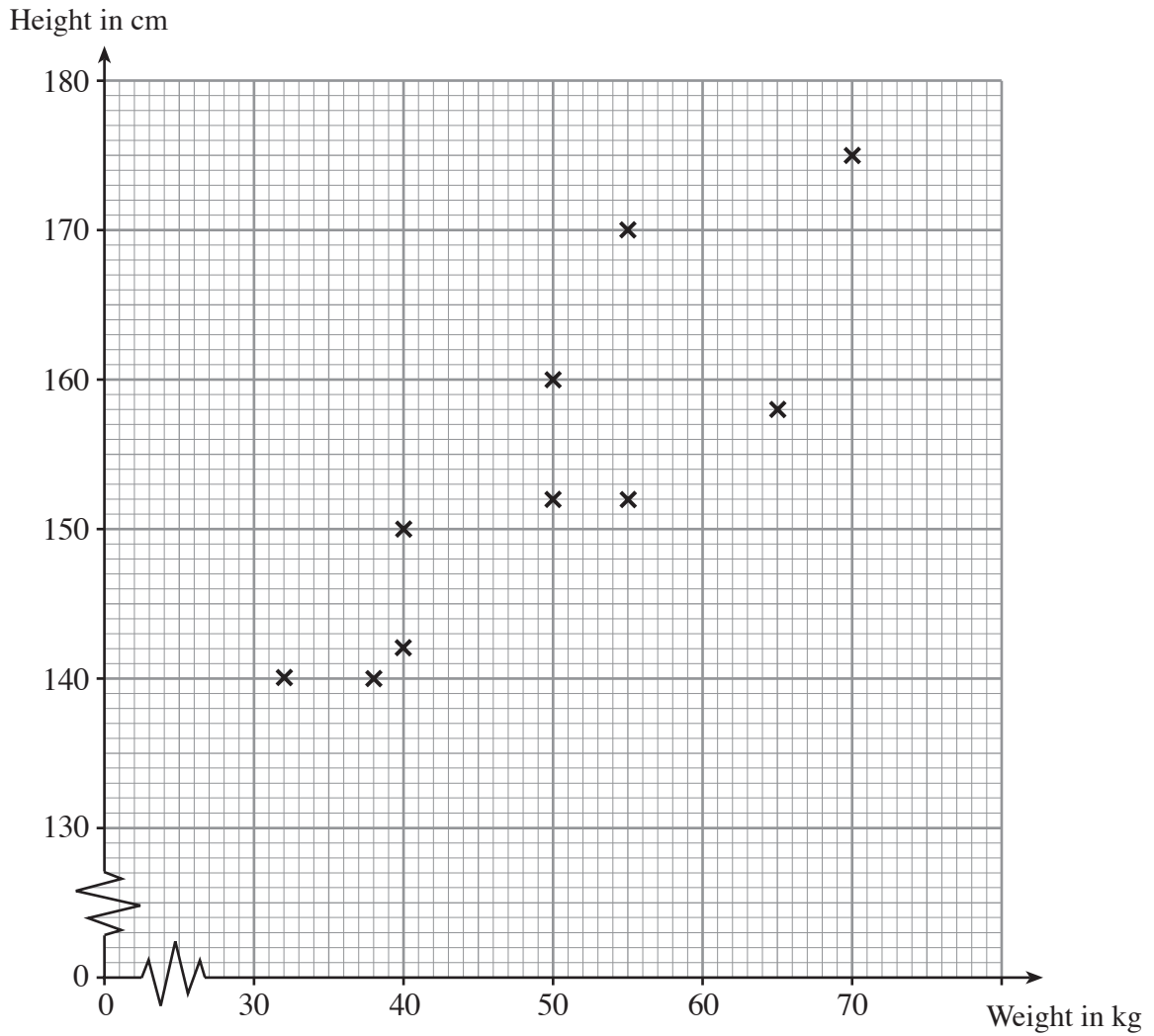
.....

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[3]

14. The scatter diagram shows the height, in cm, and the weight, in kg, for each of 10 persons.



(a) Write down the weight and height of the **tallest** of the 10 persons.

Weight ..... kg

Height ..... cm

[2]

(b) Write down the type of correlation shown by the scatter diagram.

..... [1]

(c) Draw, by eye, a line of best fit on the scatter diagram.

[1]

(d) Estimate the weight of a person of height 165 cm.

..... [1]



- (e) Is it possible to tell from the scatter diagram which was the first of the 10 people to be weighed and have their height measured? You must give a reason for your answer.

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.....

.....

[1]

15.

**Mixed Berry Yogurt Shake**

Serves **8** people

Ingredients:      4 cups semi-skimmed milk  
                          4 cups low fat natural yogurt  
                          16 ounces mixed summer fruits  
                          4 tablespoons of honey

The recipe for Mixed Berry Yogurt Shake appears in an old cookery book. Inside the cover of the book the reader is told that 1 cup = 250 ml, 4 ounces is approximately 115 g and 1 tablespoon is 15 ml.

(a) Complete the recipe below for serving 8 people using ml and g.

**Mixed Berry Yogurt Shake**

Serves **8** people

Ingredients:      ..... ml semi-skimmed milk  
                          ..... ml low fat natural yogurt  
                          ..... g mixed summer fruits  
                          ..... ml of honey

[4]

(b) Jamie has large quantities of natural yogurt, mixed summer fruits and honey but only has 5.5 litres of semi-skimmed milk. Find the largest number of people for whom Jamie can make Mixed Berry Yogurt Shakes.

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[3]

16. (a) Complete the following table by placing a tick (✓) in any box where the given statement is true.

Statement	Square	Parallelogram	Trapezium
The diagonals are equal in length			
Opposite angles are equal			
Only one pair of opposite sides are parallel			
The diagonals are lines of symmetry			

[3]

- (b) Explain why three lines of lengths 3 cm, 5 cm and 10 cm cannot be used to form a triangle.

.....

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.....

.....

[1]

- (c) Two exterior angles of a triangle are  $150^\circ$  and  $110^\circ$ . Calculate the size of the third exterior angle of the triangle.

.....

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.....

.....

[3]

17. (a) Expand  $c(c^3 - 5)$ .

.....  
..... [1]

(b) Simplify  $4(2d - 3) + 3(5 - 7d)$ .

.....  
.....  
..... [2]

(c) Solve  $7e + 12 = 3(e + 6)$ .

.....  
.....  
.....  
..... [3]