

Monday 16 January 2012 – Morning

GCSE MATHEMATICS B (MEI)

B292B Paper 2 Section B (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

- Geometrical instruments
- Scientific or graphical calculator
- Tracing paper (optional)

Duration: 1 hour



Candidate
forename

Candidate
surname

Centre number

Candidate number

INSTRUCTIONS TO CANDIDATES

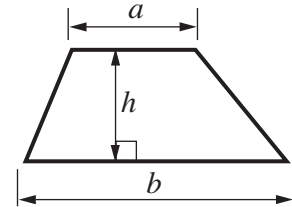
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

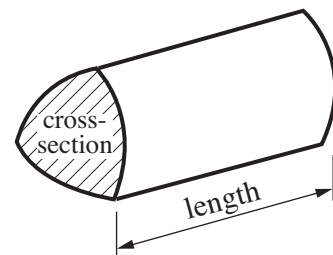
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 11.
- You are expected to use a calculator in Section B of this paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is **50**.
- This document consists of **12** pages. Any blank pages are indicated.

Formulae Sheet: Foundation Tier

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



Volume of prism = (area of cross-section) \times length



PLEASE DO NOT WRITE ON THIS PAGE

- 11 (a) Sandeep buys some CDs that cost £2.50 each.

How many CDs can he buy for £40?

(a) [2]

- (b) Calculate 85% of £480.

(b) £ [2]

- 12 Moira and Duncan investigate how many pieces of fruit they eat each day for two weeks. Here is Moira's record.

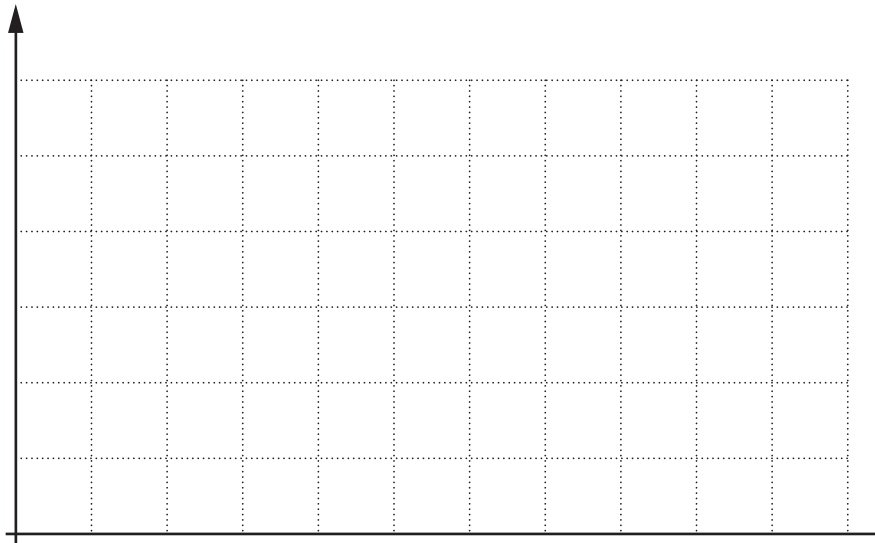
Number of pieces of fruit eaten each day						
2	3	0	1	1	2	4
1	1	1	0	2	0	3

- (a) Complete the table for Moira's data.

Number of pieces of fruit	Tally	Frequency
0		
1		
2		
3		
4		

[2]

- (b) Draw a bar chart to represent the information in the table.



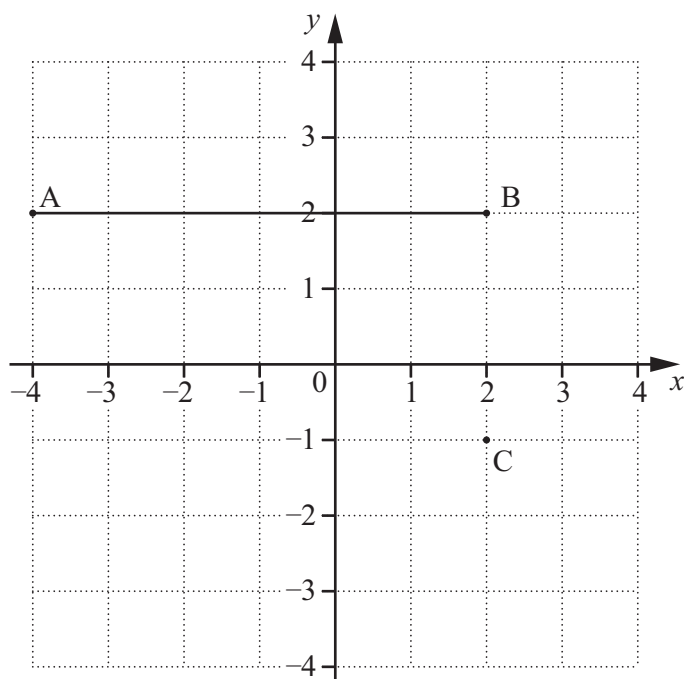
[3]

Over the same two weeks, Duncan finds that, for his data, the mode is 3 and the range is 4.

(c) Make **two** comparisons between Moira's and Duncan's daily fruit consumption.

- 1
-
- 2
- [2]

13



(a) On the grid, mark the midpoint of the line AB.
Label it M.

[1]

(b) Write down the coordinates of the point C.

(b) (..... ,) [1]

(c) D is the point $(-3, -2)$.

Mark and label the point D.

[1]

14 In this question, n is a positive whole number.

For each expression, write

- **O** if it is always odd,
- **E** if it is always even,
- **S** if it is sometimes odd and sometimes even.

$n + 2$
$4n$
$2n + 3$
$4n - 2$

[3]

- 15 (a) Here are the first four terms of a sequence.

1 4 9 16

For this sequence, write down

- (i) the next term,

(a)(i) [1]

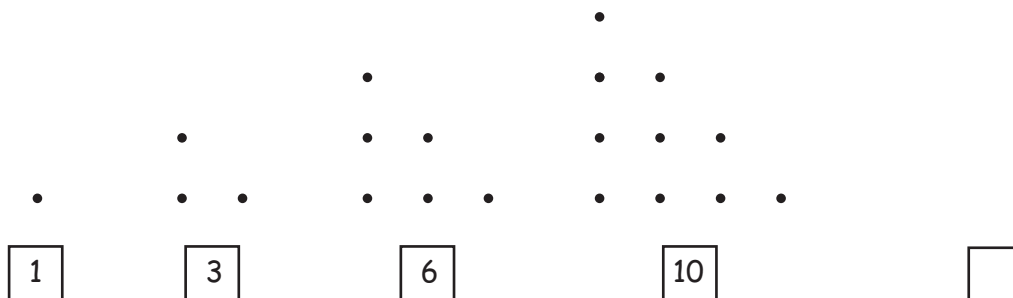
- (ii) the 10th term,

(ii) [1]

- (iii) the name given to the sequence.

(iii) [1]

- (b) Draw the next pattern in the sequence below.
Write down the number of dots in your pattern.



[2]

- (c) Another sequence has n th term $2n + 3$.

Work out the first three terms of this sequence.

(c) , , [2]

- 16** Alice, Beth and Chris often eat at a restaurant.
They like to share the bill equally between the three of them.

(a) One night they eat at the restaurant and the total bill is £35.70.

How much should each of them pay?

(a) £ [1]

(b) Another night the bill comes to £29.54.

Suggest a sensible way for the friends to share this as equally as possible.

..... [1]

(c) On a different night they get a bill for £42.87.
They decide to pay £15 each and use the extra money to give a tip.
Showing your method, explain whether the tip is about 5% or about 10%.

..... % because

.....

..... [2]

- 17** Stephane has two six-sided dice, each numbered 1 to 6.
One is red and the other is blue.

(a) The red die is unbiased.

What is the probability that when Stephane rolls the red die it shows 5 or 6?

(a) [1]

(b) The blue die is biased so that when it is rolled

- the probability it shows 6 is 0.4,
- the probability it shows 5 is 0.3.

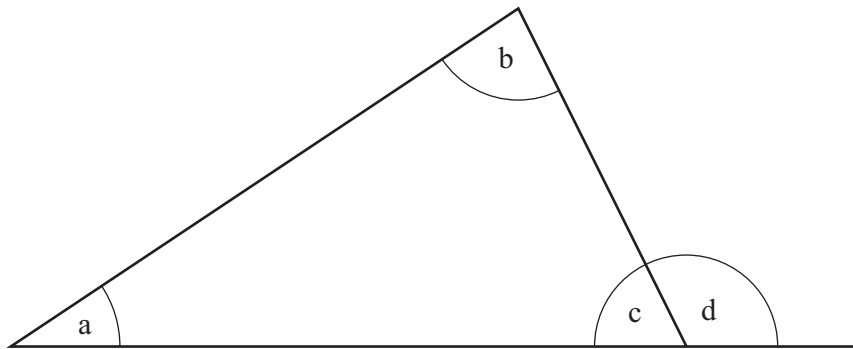
(i) What is the probability that, when Stephane rolls the blue die, it shows 5 or 6?

(b)(i) [1]

(ii) Suggest how Stephane might find an estimate for the probability that, when the blue die is rolled, it shows 2.

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

18 Complete this proof about the angles of a triangle.



$a + b + c = \dots\dots\dots^\circ$ because $\dots\dots\dots$

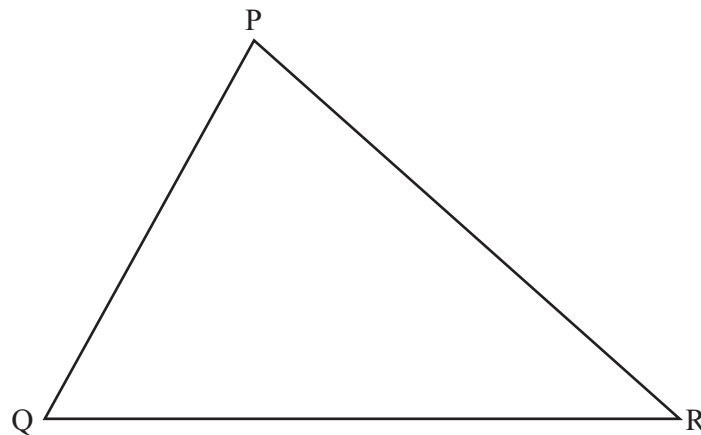
$d + c = \dots\dots\dots^\circ$ because $\dots\dots\dots$

So $a + b = \dots\dots\dots$

So the exterior angle of a triangle is equal to the sum of the two opposite interior angles.

[5]

19



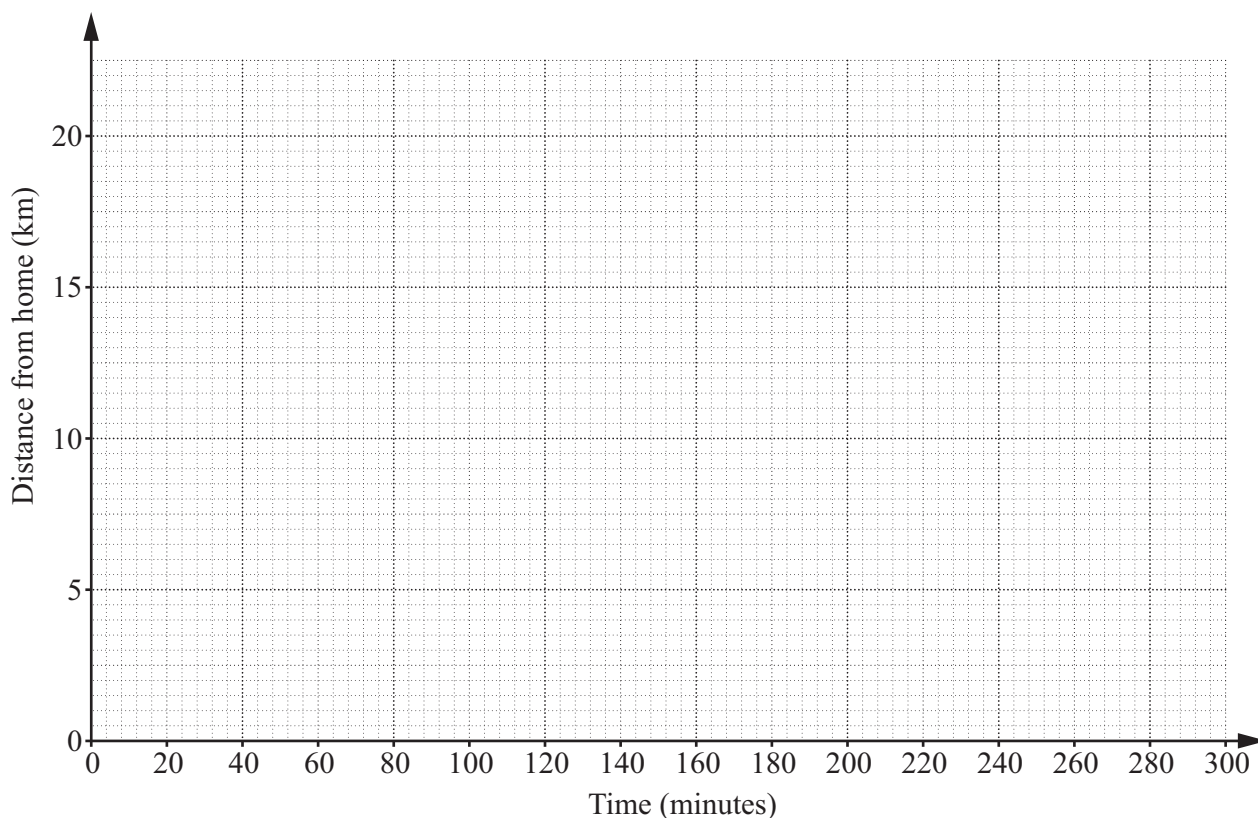
Shade the locus of points which are

- inside the triangle,
- at least 4 cm from Q and
- nearer to QR than to QP.

[3]

- 20 Greg cycled from home to his Grandma's house.
His Grandma lives 20 km away.
He cycled the first 8 km, at a steady speed, in 40 minutes.
He then rested for 10 minutes.
He then cycled the remaining 12 km at a steady speed that was faster than during the first part of the journey.
Greg stayed at his Grandma's house for one hour.
He then cycled home at a steady speed of 12 km/h.

Draw a possible distance-time graph for Greg's journey.



[6]

TURN OVER FOR QUESTION 21

- 21 Choose transformations from this list for your answers.
In each part, list **all** the possible transformations.

Rotation	Reflection	Translation	Enlargement
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- (a) A transformation maps triangle A onto triangle B.
The angles of triangle A are the same as the corresponding angles of triangle B.

The transformation could be
..... [2]

- (b) A transformation maps triangle C onto triangle D.
Triangle C is congruent to triangle D.

The transformation could be
..... [1]

- (c) A transformation maps triangle E onto triangle F.
Triangle F has a smaller area than triangle E.

The transformation could be
..... [1]

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