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Wednesday 11 January 2012 – Morning

GCSE MATHEMATICS C (GRADUATED ASSESSMENT)

B281B Terminal Paper – Section B (Foundation Tier)

B216620112

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Geometrical instruments
- Tracing paper (optional)
- Pie chart scale (optional)
- Scientific or graphical calculator

Duration: 1 hour

B281B

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

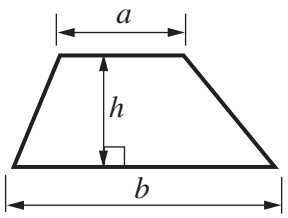
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting 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

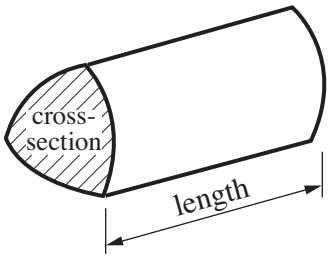
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Section B starts with question 11.
- You are expected to use a calculator in Section B of this paper.
- Use the π button on your calculator or take π to be 3·142 unless the question says otherwise.
- The total number of marks for this Section is **50**.
- This document consists of **16** pages. Any blank pages are indicated.

Formulae Sheet

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



Volume of prism = (area of cross-section) × length



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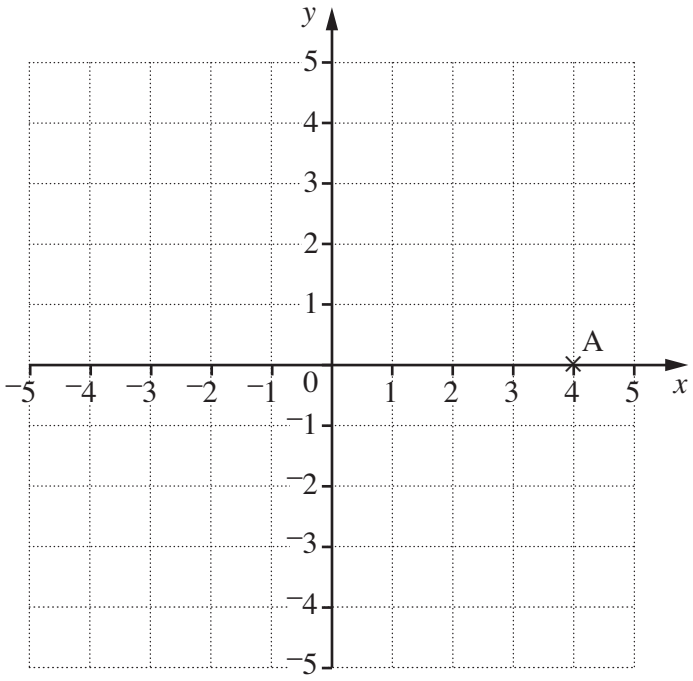
11 **(a)** Here is a coordinate grid.



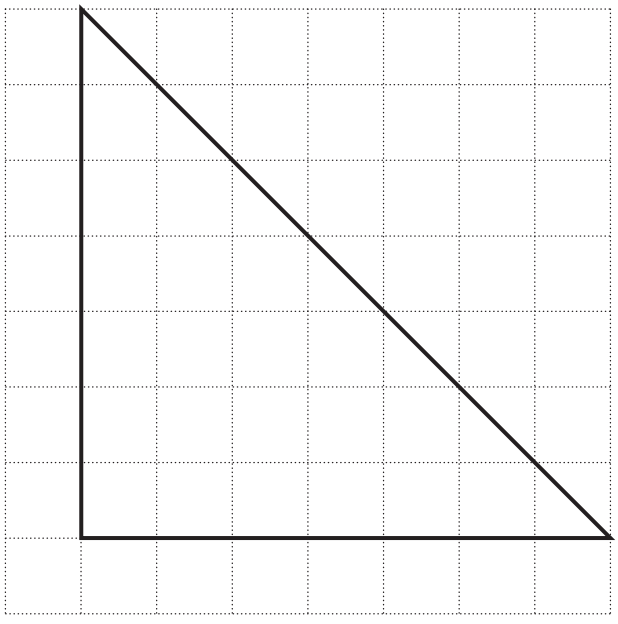
(i) Write down the coordinates of point A.

(a)(i) (....., ...) **[1]**

(ii) Plot the point (1, 3).
Label it B. **[1]**

(iii) Plot the point (−3, 4).
Label it C. **[1]**

(b) Find the area of the triangle drawn on this grid of centimetre squares.



(b) .....cm^2 **[1]**

12 **(a)** Jim goes shopping at the DIY store.

Complete Jim's bill.

Item	Cost
3 tins of paint at £4·99 each	£
2·7m of wood at £4·50 a metre	£
a pack of nails price £1·70	£
Total	£

[3]

(b) Jim keeps spare bits of wood in his shed.
These are the lengths, in centimetres, of the eight bits of wood in his shed.

185 207 65 46 55 87 132 71

(i) Find the median length of these eight bits of wood.

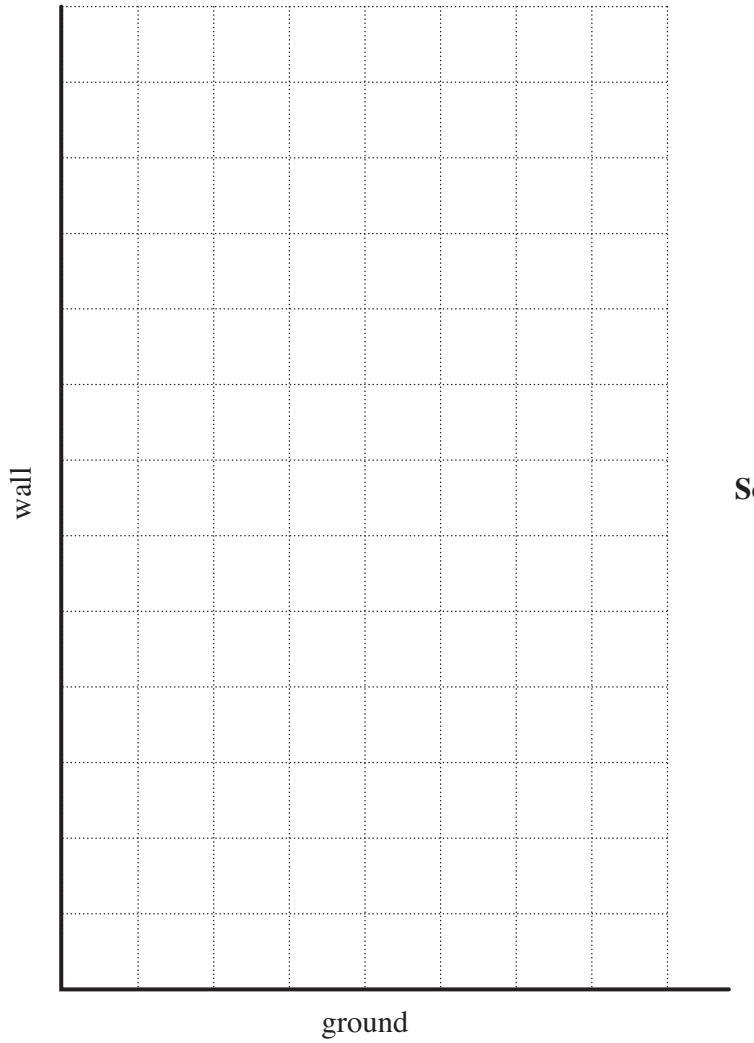
(b)(i) ..... cm **[2]**

(ii) Find the mean of these eight lengths.

(ii) ..... cm **[3]**

(c) Jim rests his ladder against a wall.
The top of the ladder is 5·6 m up the wall.
The bottom of the ladder is on the ground, 1·8 m away from the wall.
On the centimetre grid below, the ground and the wall have been drawn.

(i) Using a scale of 2 cm to 1 m, draw the position of the ladder.



Scale: 2 cm to 1 m

[2]

(ii) Measure the angle between the ladder and the ground.

(c)(ii) ..... ° **[1]**

13 Amy is on holiday.

(a) There are three special activities to be done during the holiday.

- pony trekking (P)
- abseiling (A)
- canoeing (C)

The activities can be done in any order, one each day.
Amy will do them all.

Complete this list to show all the possible orders for doing these activities.
One has been done for you.

You may not need to use all the rows.

Day 1	Day 2	Day 3
A	C	P

[2]

(b) Amy does the activities in random order.

What is the probability that Amy goes canoeing the day after pony trekking?

(b) ..... **[2]**

(c) Fossil hunting is an optional extra activity.

Amy says:

The probability that I will go fossil hunting is 0·4.

What is the probability that Amy does not go fossil hunting?

(c) ..... **[1]**

14 **(a)** Simplify.

(i) $2a + 4 - a + 10$

(a)(i) ..... **[2]**

(ii) $5p \times 6p$

(ii) ..... **[2]**

(b) Find the value of $2x + 3$ when $x = -5$.

(b) ..... **[2]**

15 **(a)** One day in January, the temperature of a hotel swimming pool was 28 °C.
The temperature outside the hotel was $^{-}4$ °C.

(i) What was the difference between these temperatures?

(a)(i) ..... °C **[1]**

(ii) That night, the temperature outside was 8 °C lower than during the day.

What was the temperature outside that night?

(ii) ..... °C **[1]**

(b) This notice was at the swimming pool.

Battle of the sexes

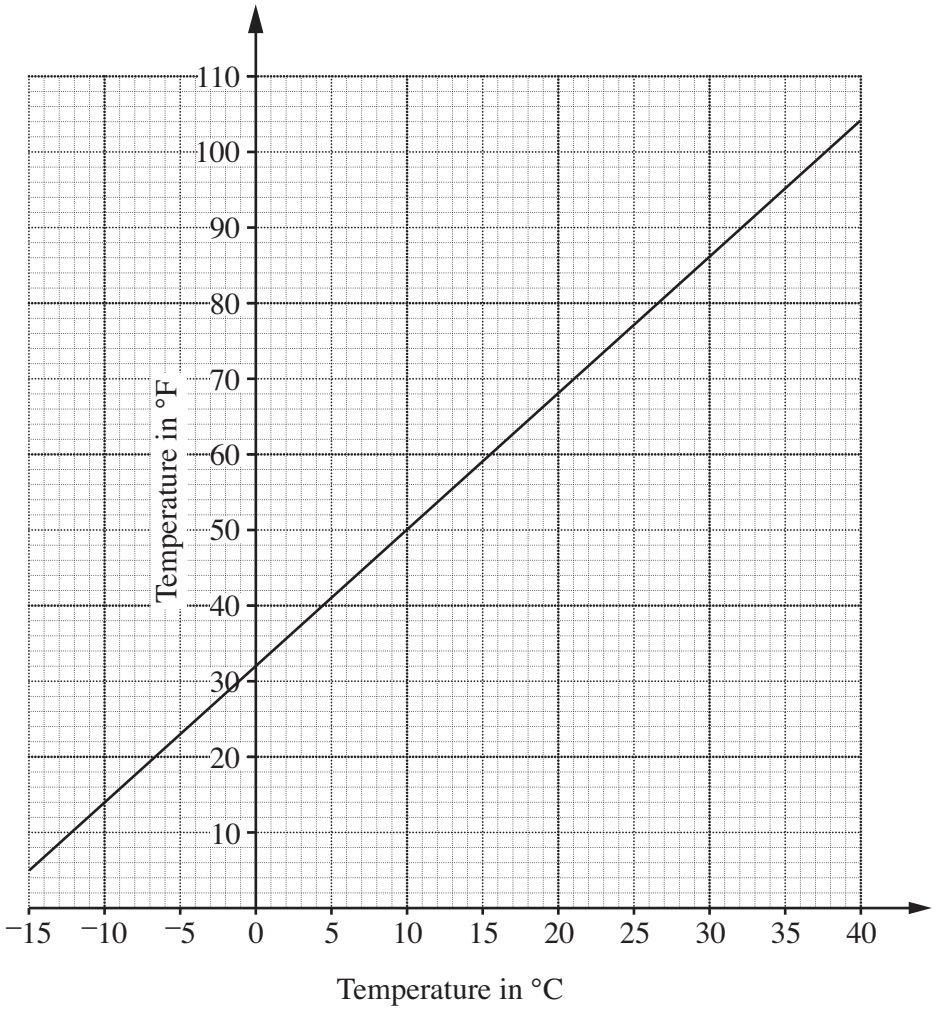
Last month
Men 2372 lengths = 39·8 miles
Ladies 5382 lengths = 90·3 miles

Well done Ladies!

Given that 1 mile = 1609·3 metres, calculate the length of the swimming pool in metres.
Give your answer to a sensible degree of accuracy.

(b) ..... metres **[4]**

16 This conversion graph shows temperatures in degrees Celsius (°C) and degrees Fahrenheit (°F).



(a) Use the graph to convert

(i) 70 °F into degrees Celsius,

(a)(i) ..... °C **[1]**

(ii) −8 °C into degrees Fahrenheit.

(ii) ..... °F **[1]**

(b) The temperature in degrees Fahrenheit for 60 °C is **not** double the temperature for 30 °C.

Use the graph to find the correct answer for 60 °C, explaining your method.

..... °F because .....

.....

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

17 A shredder cuts paper into rectangular pieces measuring 4 mm by 32 mm.

Into how many pieces does the shredder cut a sheet of paper measuring 210 mm by 297 mm?
Show your method.

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

18 In the 2006/7 season, the average attendance at home league games of Leeds United was 20 831.

(a) In the 2007/8 season the average attendance increased by 27% of the 2006/7 figure.

What was the average attendance in the 2007/8 season?

(a) ..... **[3]**

(b) For one game, the local newspaper reported:

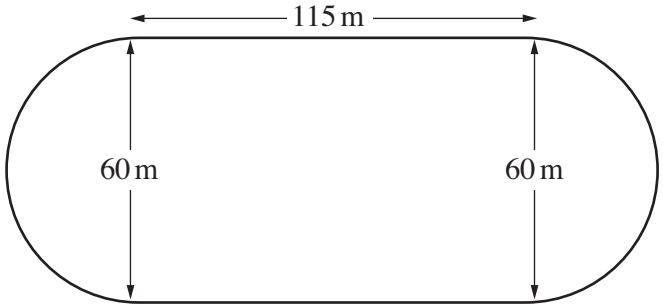
25 000 at game

This figure was correct to the nearest thousand.

Complete this statement:

The attendance at the game was between ..... and ..... . **[2]**

19 **(a)** This diagram shows a running track with two straight sections and semi-circular ends.
The length of each straight section is 115 m and the diameter of each semi-circular end is 60 m.



Not to scale

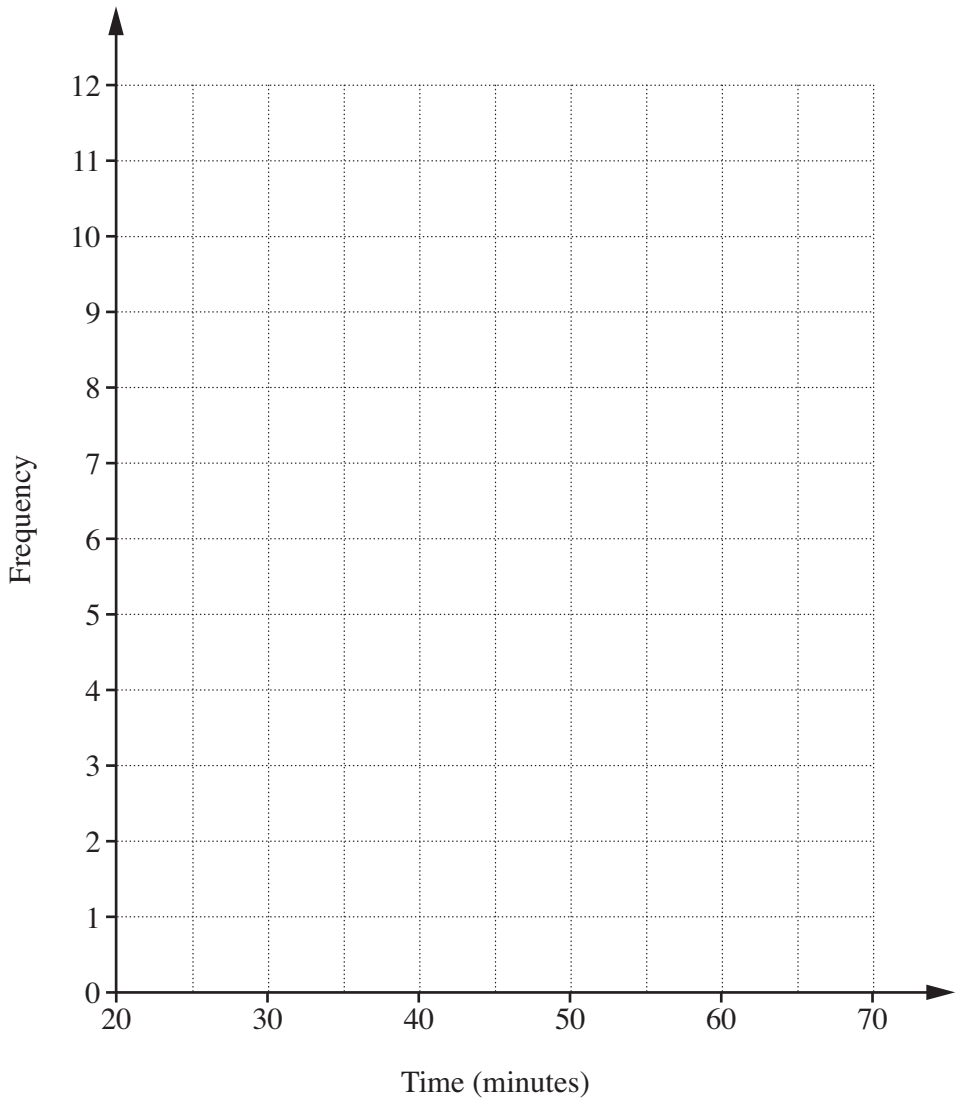
Calculate the distance around the track.

(a) ..... m **[3]**

(b) The track is used for a sponsored 5 km walk.
These are the times, to the nearest minute, of 30 walkers.

25	27	27	28	32	32	35	39	41	41
42	42	45	45	47	48	48	48	51	51
57	58	58	59	62	64	65	65	67	68

Using suitable class intervals, draw a frequency polygon to represent these data.



[3]

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