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Rewarding Learning

**General Certificate of Secondary Education
November 2021**

Mathematics

Unit M6 Paper 2
(With calculator)
Foundation Tier

[GMC62]   *GMC62*

THURSDAY 2 DECEMBER, 10.45am–11.45am

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of
this page. **You are provided with Foundation Tier Additional Support Materials for use
with this paper.**
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page, on blank pages or tracing paper.
Complete in black ink only. **Do not write with a gel pen.**
Answer **all sixteen** questions.
All working should be clearly shown in the spaces provided. Marks may be awarded for
partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to
each question or part question.
You should have a calculator, ruler, compasses and a protractor.
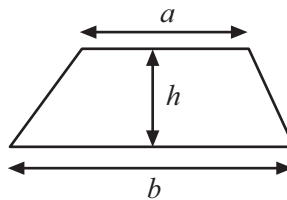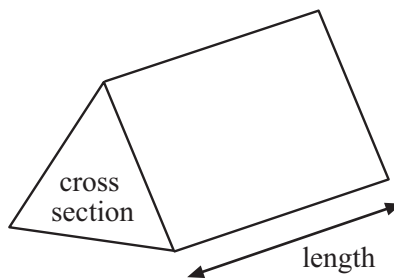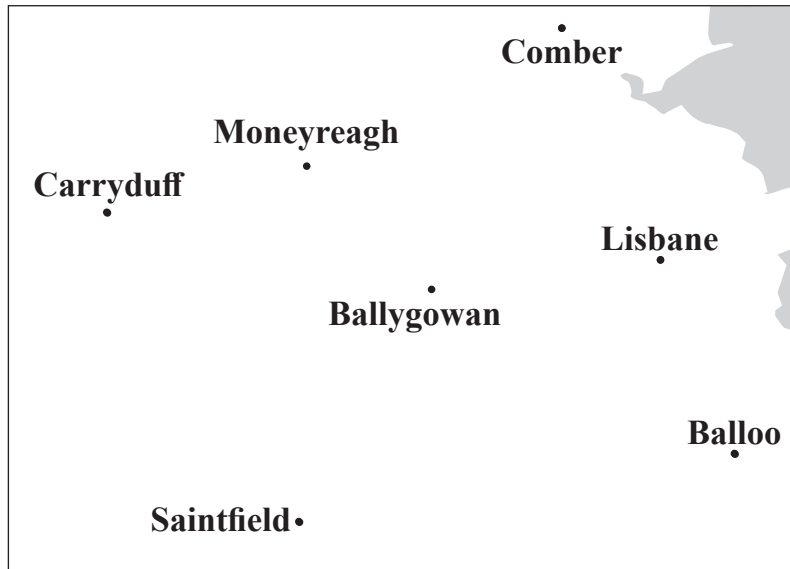The Formula Sheet is on page 2.

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Formula Sheet

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

Volume of prism = area of cross section × length

1   The map shows some places in Co Down.

Scale: 1 cm represents 1 mile

A bird flies direct from Carryduff to Balloo.

What is the actual distance the bird flies?

Answer _____ [2]

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20GMC6203

2 **(a)** Gordon has 185 grams of flour.

He needs half a pound of flour for a recipe.

There are 454 grams in one pound.

How much **more** flour does he need?

Answer _____ g [2]

(b) Glenarm is 20 miles from Carrickfergus.

How many kilometres is this?

Answer _____ km [2]

3 Cathy is working on a sequence:

$$4, \ 9, \ 14, \ 19, \ \underline{\qquad}$$

She continues this sequence for a few more terms and spots a pattern.

She uses the pattern to predict correctly what the **last digit** is in the 30th term.

What is the last digit?

Answer _____ [1]

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4 Some children are in a playground.

They are aged 10, 8, 11, 8, 9, 8 and 8 years old.

One of the children is chosen at random.

(a) What is the probability that the child is 8 years old?

Answer _____ [1]

(b) What is the probability that the child is 7 years old?

Answer _____ [1]

(c) What is the probability that the child is not 11 years old?

Answer _____ [1]

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20GMC6206

5 **(a)** The probability that Matt eats breakfast is marked on the scale with a B.

What is the probability?

```
0                          B        1
|____|____|____|____|____|
```

Answer _____ [1]

(b) Matt has a three-digit combination lock for his bike.

He has forgotten the code.

He knows the first digit is 2

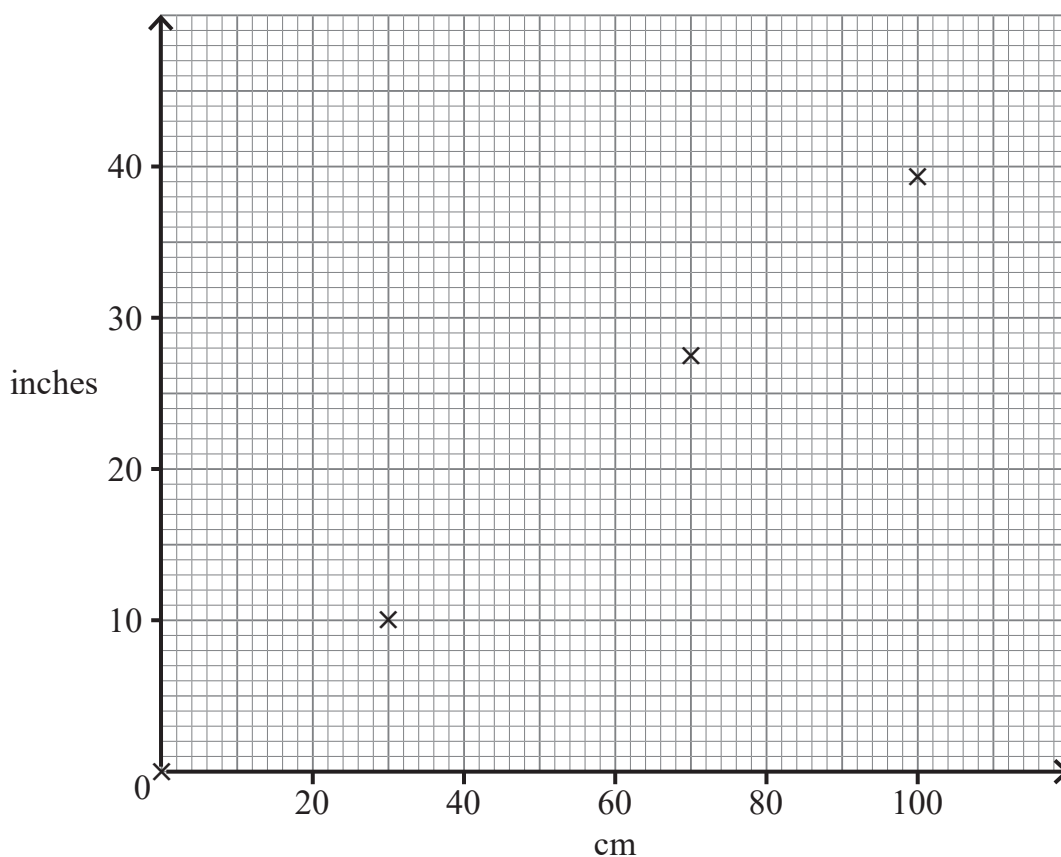The second digit is either 3 or 4

The third digit is 5, 6 or 7

List all the possible combinations of Matt's code.

[2]

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6 Pat plotted four points to make a conversion graph from centimetres to inches.

(a) One point is wrong. Circle the wrong point. [1]
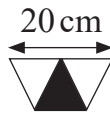
(b) Draw the conversion graph. [1]

(c) Use the graph to convert 88 cm to inches.

Answer _____ inches [1]
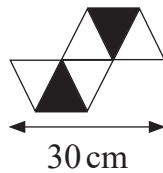
20GMC6208

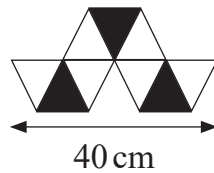**7** A trapezium is divided into 3 equilateral triangles, 1 black and 2 white.
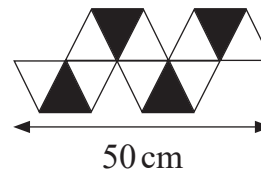
The trapezium has a side length of 20 cm as shown.

20 cm

The trapeziums are lined up to make chain patterns.

30 cm	40 cm	50 cm
Pattern 1	Pattern 2	Pattern 3

(a) Complete the table for the missing length for 10 trapeziums.

Number of trapeziums	1	2	3	4	....	10
Length of chain (cm)	20	30	40	50	....	

[2]

(b) Complete the table for the missing number of **white triangles** when the pattern number is 10

Pattern number	1	2	3	....	10
Number of white triangles	4	6	8	....	

[1]

8

500 g

200 g

900 g
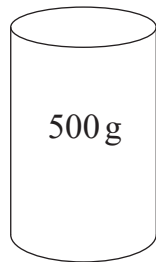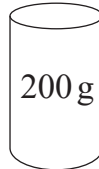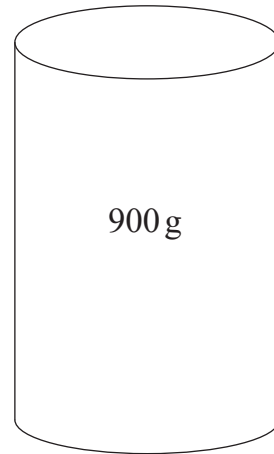
£3.50   £1.50   £6.50

Raisins are sold in three different sizes of tubs.

Which is the best value for money?

You must show your working.

Answer _____ [4]

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9 Bob changed £35 into euro.

Bev changed £42 into euro.

The exchange rate was £1 = 1.06 euro.

How many more euro did Bev get than Bob?

Answer _____ euro [3]

[Turn over

20GMC6211

10 (a) A roll of wallpaper has a width of 53 cm, measured to the nearest centimetre.

What is the maximum width of this roll of wallpaper?

Answer _____ cm [1]

(b) A television has a screen width of 88.6 cm, measured to one decimal place.

What is the minimum screen width of this television?

Answer _____ cm [1]

11 One Saturday, 460 people visited the museum.

180 were children of which $\frac{3}{5}$ were girls.

280 were adults and the ratio of men to women was 4:3

Paul says that, altogether, more males than females visited the museum that Saturday.

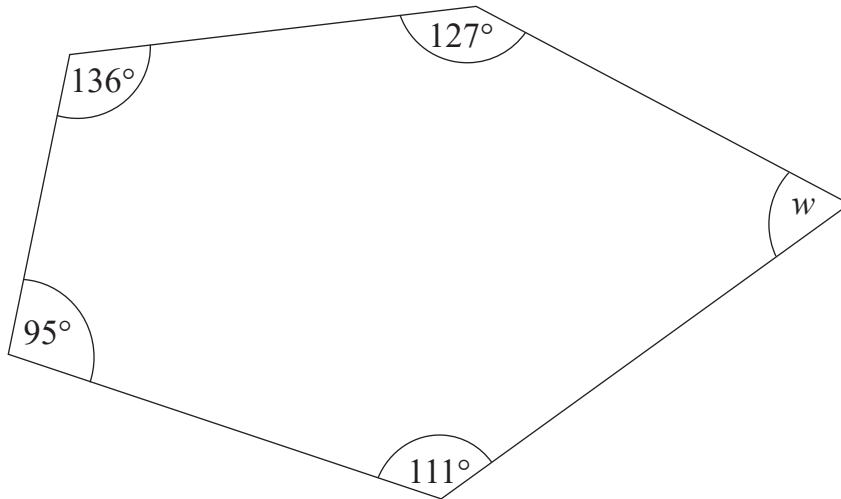Is he correct?

Show all your working.

Answer _____ [4]

12

diagram
not
drawn
accurately

Work out the size of the angle *w* in the pentagon drawn above.

Answer *w* = _____° [3]

20GMC6214

13 A company makes memory chips.

The probability that one of these memory chips is faulty is 0.025

The company makes 1800 memory chips each hour.

Work out an estimate for the number of memory chips made per hour that will **not** be faulty.
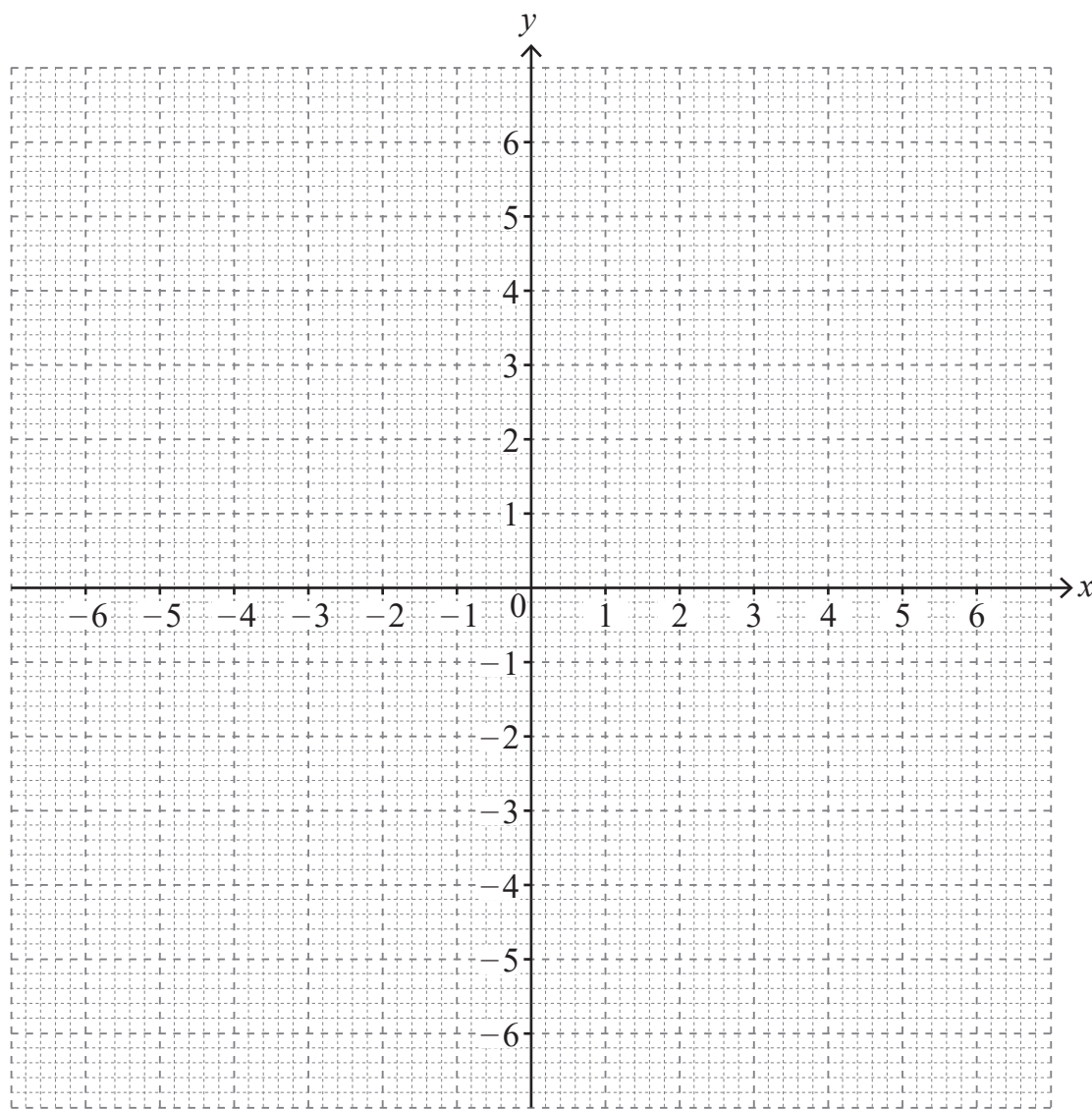
Answer _____ [3]

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20GMC6215

14 (a) Draw the graph of $y = 5 - x^2$

Use the table below to help you.

x	−3	−2	−1	0	1	2	3
y	−4				4		

[3]

20GMC6216

(b) Use the graph of $y = 5 - x^2$ to solve the equation $5 - x^2 = -2$

Answer $x =$ _____ or $x =$ _____ [1]

15 **(a)** Simplify

(i) $12x^5 \div 3x^3$

Answer _____ [2]

(ii) $(x^3)^4$

Answer _____ [1]

(b) Eva wants to find the nth term of this sequence.

$$1, 5, 9, 13, 17 \ldots$$

She knows that it starts with $4n$

Complete the nth term for this sequence.

Answer $\underline{4n}$ [1]

[Turn over

16 (a) Work out the size of an exterior angle of a 24-sided regular polygon.

Answer _____° [2]

(b) The sum of the interior angles of a regular polygon is 1800°

Work out how many sides this polygon has.

Answer _____ [2]

_____

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