Rewarding Learning

General Certificate of Secondary Education

Centre Number

Candidate Number

Mathematics

StemUp Model Solution

Unit M5 Paper 2
(With calculator)
Foundation Tier



GMC52

[GMC52]
Assessment

Assessment Level of Control:
Tick the relevant box (✓)

Controlled Conditions	
Other	

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
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.

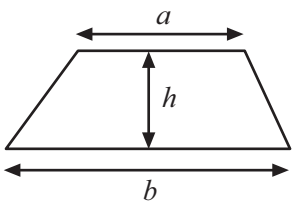
INFORMATION FOR CANDIDATES

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.

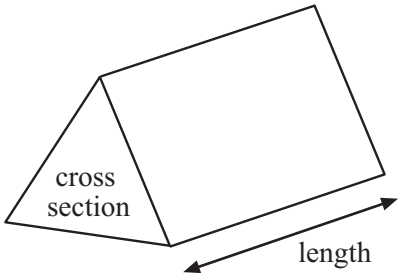
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Formula Sheet

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

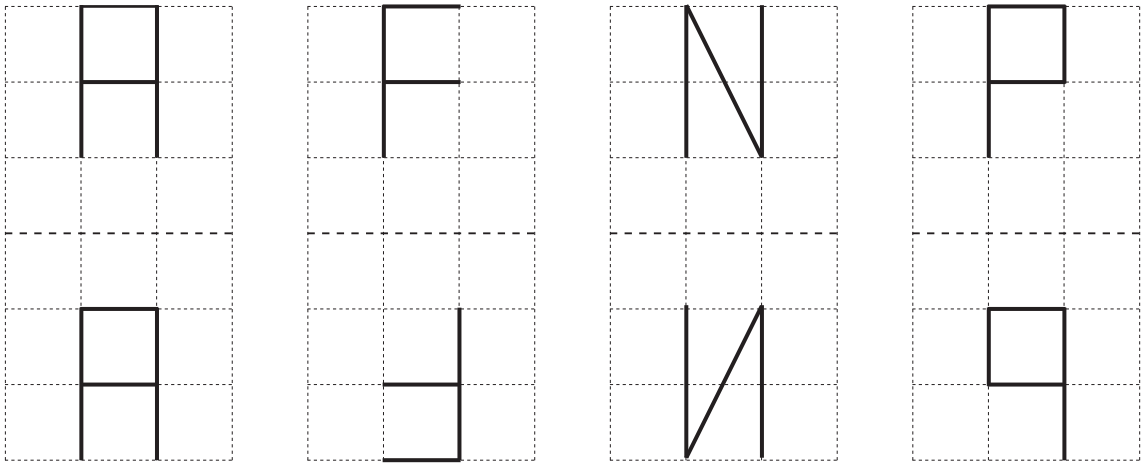


Volume of prism = area of cross section × length



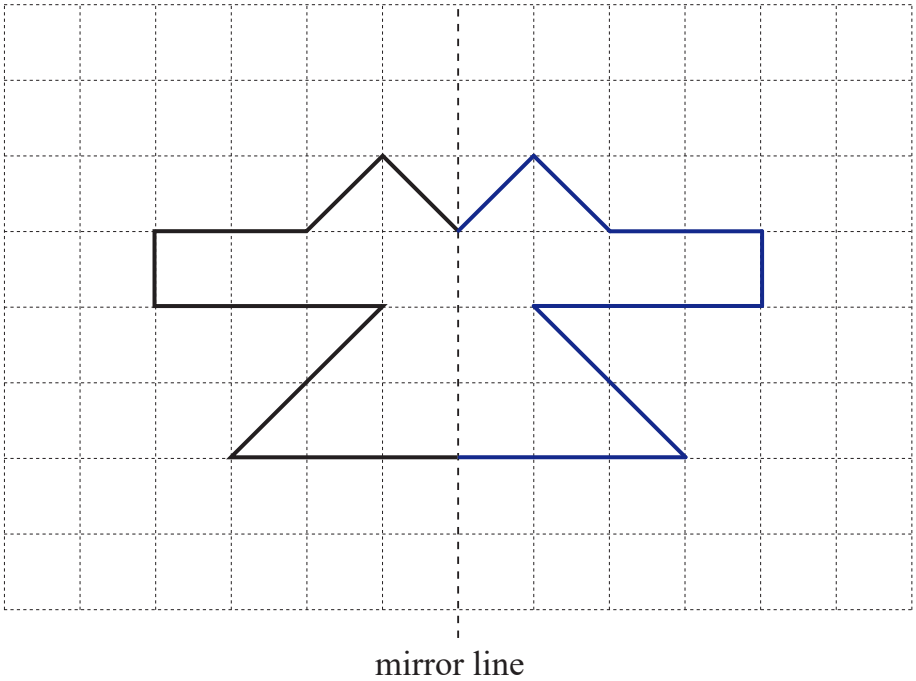
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1 **(a)** Which letter has been correctly reflected in the dashed mirror line?



Answer _____*N*_____ [1]

(b) Draw the reflection of the shape in the mirror line.

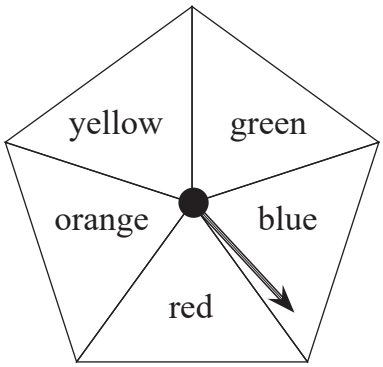


[2]

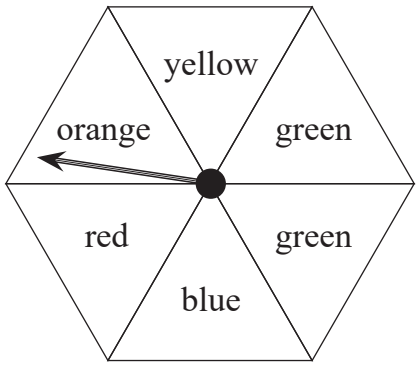
[Turn over

2 Two different spinners are shown.

Spinner A



Spinner B



Each spinner is spun once.

(a) Which spinner gives the best chance of landing on **green**?

Circle your answer.

Spinner A (Spinner B) Both the same [1]

(b) Which spinner gives the best chance of landing on **red**?

Circle your answer.

(Spinner A) Spinner B Both the same [1]

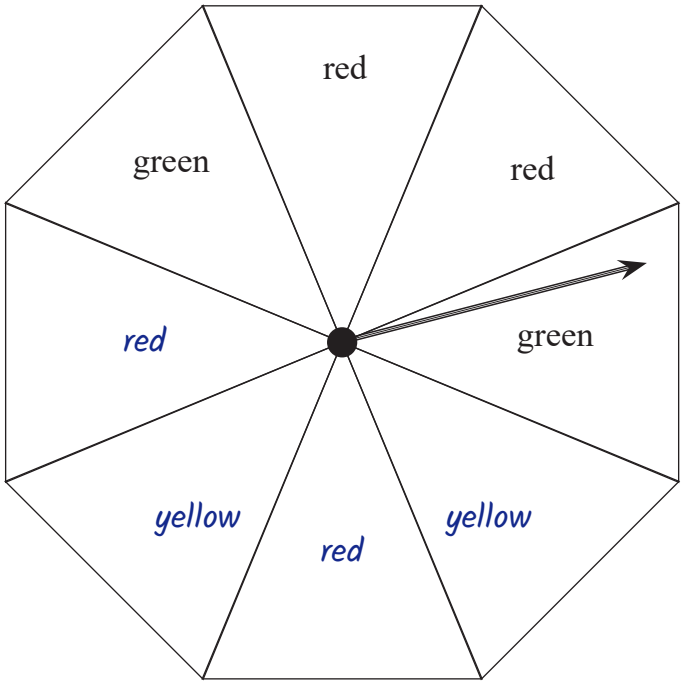
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(c) Another spinner is shown.

Write the missing colours on the spinner so that the statements below are true.

Landing on red is twice as likely as landing on green.

Landing on green is the same likelihood as landing on yellow.



[1]

8 sections: green 2, so yellow 2 and red 4

3 **(a)** What name is given to these special numbers?

1, 3, 6, 10, 15, 21, …

Answer Triangular numbers [1]

(b) Square numbers can be made from this sequence by adding each number to the one that comes next.

(i) Complete the table below.

1+3	3+6	6+10	10+15	15+21
4	9	16	25	36

[1]

(ii) What is the next square number?

Answer 49 [1]

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4

Paul's Cupcakes 3 for £1	Noel's Cupcakes 5 for £1.50	Sandi's Cupcakes 32p each Buy 5, get 1 free

Prue wants to buy 30 cupcakes.

What is the best price for 30 cupcakes?

Show your working.

Paul: 30 ÷ 3 = 10, 10 × £1 = £10

Noel: 30 ÷ 5 = 6, 6 × £1.50 = £9

Sandi: 30 ÷ 6 = 5 lots of 6, pay for 5 × 5 = 25 cakes

25 × 32p = 800p = £8

Best price is Sandi's: £8

Answer £ 8.00 [4]

[Turn over

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5

○ Andy	○ Beth	○ Ciaran
○ Dave	○ Ellie	○ Fran
○ Gina	○ Harry	○ Ivan

Nine children stand in the playground.

Beth is North of Ellie.

Beth is North East of Dave.

Complete the sentences.

(a) Fran is South of Ciaran. [1]

(b) Harry is West of Ivan. [1]

(c) Gina is South West of Ellie. [1]

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6 Ella needs 176 tiles for her new bathroom.



The tiles come in boxes of 12

(a) Calculate the least number of boxes that she will need.

176 ÷ 12 = 14.6666...
so she needs 15 boxes

Answer 15 [2]

(b) How many tiles will she have left over?

15 × 12 = 180 tiles
180 − 176 = 4

Answer 4 [2]

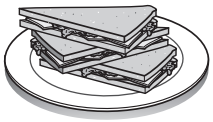
7 Circle the cube number below

3 9 (27) 81

[1]

[Turn over

8 Sandwiches contain



Ham (H), Beef (B) or Chicken (C)

Each sandwich has **either**

Sauce (S) or Mayonnaise (M)

added to them.

(a) List all the possible types of sandwich.

HS HM BS BM CS CM

[2]

(b) 120 sandwiches are made using the types in part **(a)**.

Equal numbers of each type are made.

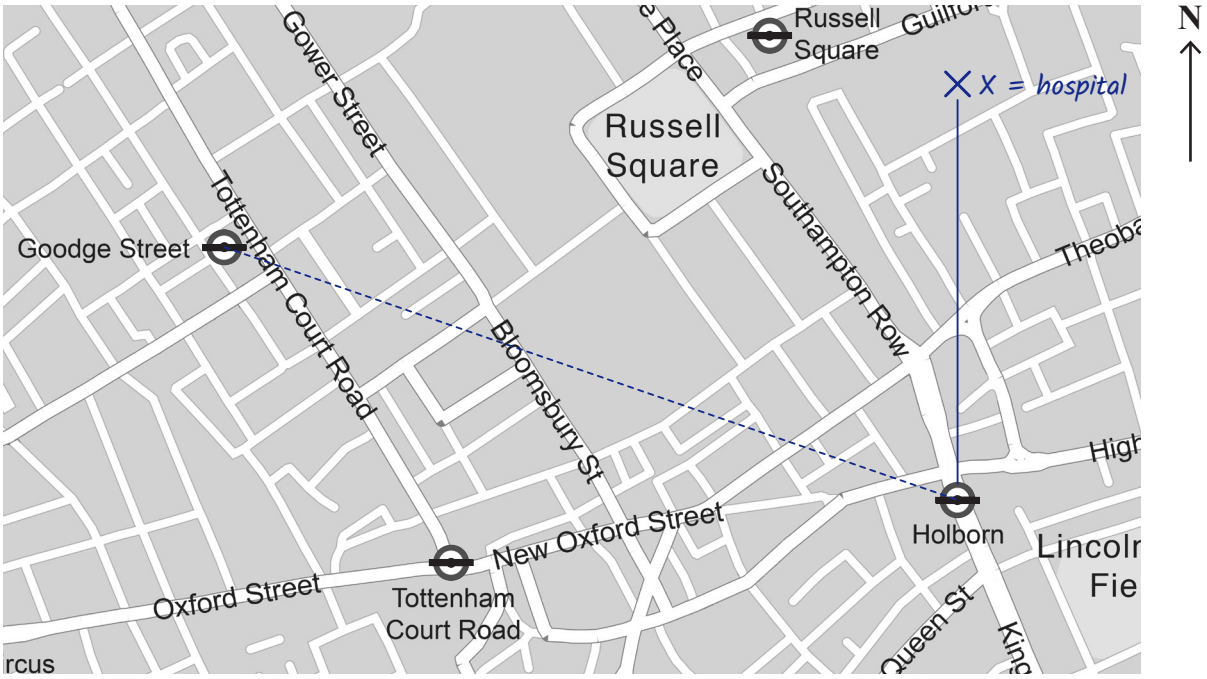
How many sandwiches contain beef?

6 types: 120 ÷ 6 = 20 of each type
Beef: BS and BM, 20 × 2 = 40

Answer 40 [2]

9 The map shows the position of four Underground Stations in London.

The symbol for an underground station is



Map Scale 1 cm = 100 m

(a) Calculate the **actual distance** between Goodge Street Underground Station and Holborn Underground Station.

Show your working clearly.

Distance on map = 10.3 cm
10.3 × 100 = 1030 m

Answer 1030 m [2]

(b) Great Ormond Street Children's Hospital is 550 m due North of Holborn Underground Station.

Mark the exact position of the hospital with an X. [2]

550 ÷ 100 = 5.5 cm due North of Holborn

[Turn over

10 Jenny's height is given as 156 cm, correct to the nearest cm.

Between what limits does Jenny's height lie?

Complete the following:



155.5 ⩽ Jenny's height < 156.5 [2]

11 Laura paid for meals, while on holiday in Spain, with her credit card.

The cost was €91.48

£1 = €1.12

(a) What was the cost in £?

91.48 ÷ 1.12 = 81.678571...
= £81.68

Answer £ 81.68 [2]

(b) Laura's bank charged her 2.7% of this cost in £ for a non-sterling transaction.

How much was this charge in £?

2.7% of 81.68 = 0.027 × 81.68
= 2.20536 = £2.21

Answer £ 2.21 [2]

12 In a herd of 40 goats there are

8 brown 9 white 13 without horns



A goat is taken at random from the herd.

What is the probability that this goat

(a) has horns,

40 − 13 = 27 with horns

Answer $\frac{27}{40}$ [1]

(b) is brown or white,

8 + 9 = 17

Answer $\frac{17}{40}$ [1]

(c) is not brown or white?

40 − 17 = 23

Answer $\frac{23}{40}$ [1]

[Turn over

13

	Pancake mix for four people	Pancake mix for ten people
Flour	200g	500 g
Milk	350ml	875 ml
Eggs	2	5
Vegetable oil	1 tablespoon	$2\frac{1}{2}$ tablespoons

The table above shows the ingredients required to make pancakes for four people.

Complete the table to show how much of each ingredient would be required for ten people. [2]

10 ÷ 4 = 2.5 so multiply each amount by 2.5

200 × 2.5 = 500 350 × 2.5 = 875

2 × 2.5 = 5 1 × 2.5 = 2.5

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14 **(a)** Fill in the next term in the following sequence.

2, 3, 5, 8, 13, 21, 34 [1]

(b) What rule did you use to find this term?

Answer Add the two previous terms together [1]

[Turn over

15 A box contains sweets.

The sweets are strawberry, lime, orange or blackcurrant flavour.

A sweet is taken at random from the box.

The table below shows some of the probabilities.

Flavour	strawberry	lime	orange	blackcurrant
Probability	0.45	0.15	0.15	0.25

(a) The box has an equal number of lime and orange sweets.

Work out the probability that an orange sweet will be taken.

$1 - 0.45 - 0.25 = 0.3$
$0.3 \div 2 = 0.15$

Answer 0.15 [2]

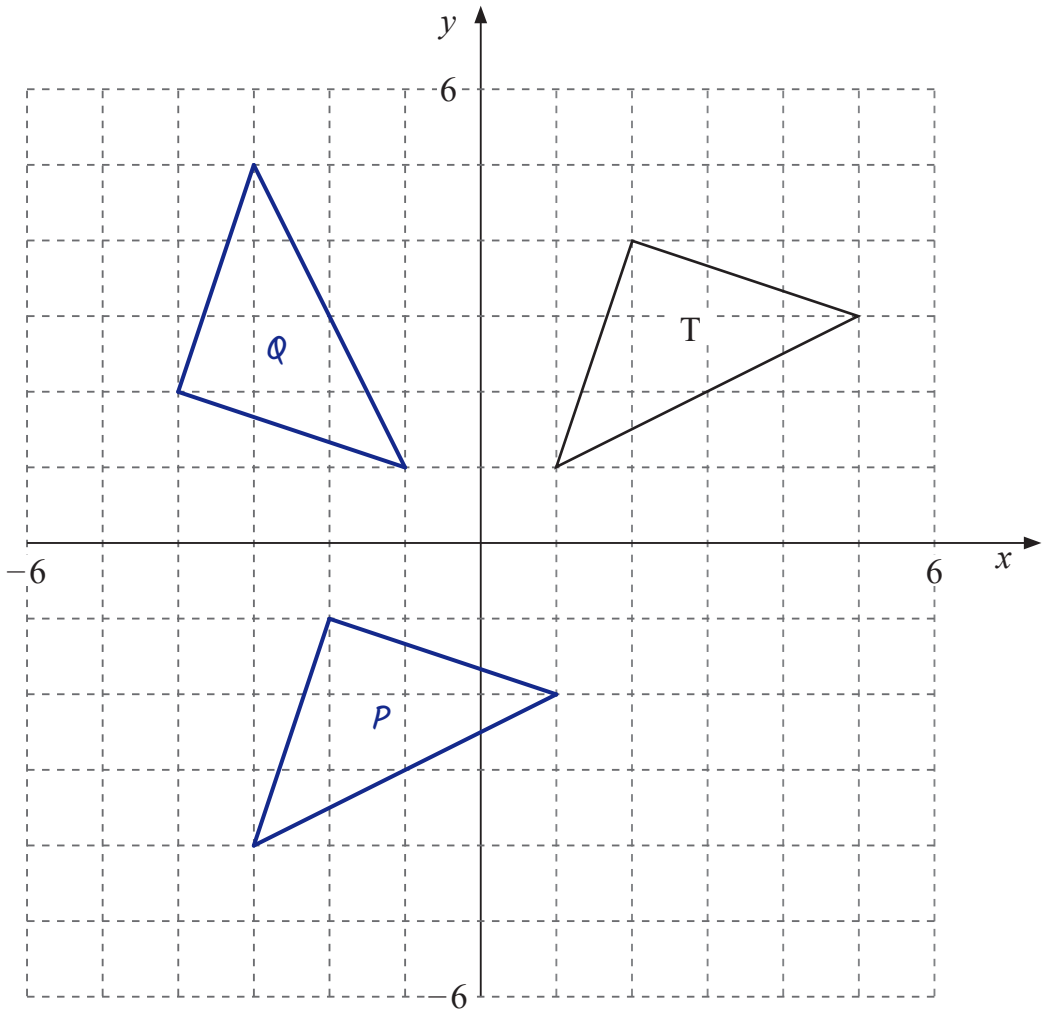
(b) The box contains a total of 120 sweets.

How many strawberry sweets should it contain?

$120 \times 0.45 = 54$

Answer 54 [2]

16



(a) Draw the image of the triangle, T, after a translation of 4 units to the left and 5 units down.
Label the image P. [1]

(b) Draw the image of the triangle, T, after a rotation of 90° anti-clockwise about the origin.
Label the image Q. [3]

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Examiner Number

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