Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2025

Mathematics

StemUp Model Solution

Unit M5 Paper 1
(Non-Calculator)
Foundation Tier



[GMC51]

GMC51

WEDNESDAY 4 JUNE, 9.15am – 10.15am

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.**
Questions which require drawing or sketching should be completed using an HB pencil.
All working **must** be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions.
You **must not** use a calculator for this paper.
Answer **all sixteen** questions.

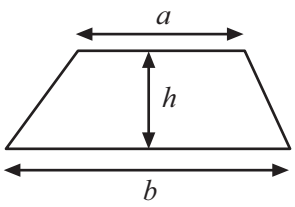
INFORMATION FOR CANDIDATES

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 ruler, compasses and a protractor.
The Formula Sheet is on page 2.

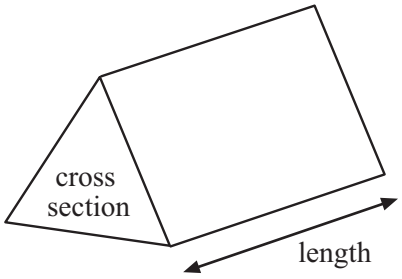
15915

Formula Sheet

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



Volume of prism = area of cross section × length



15915

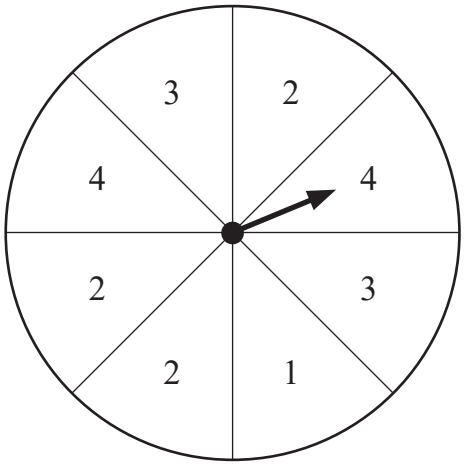
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(Questions begin overleaf)

stemup.co.uk

1 This fair spinner is spun.



Tick [✔] the box for the correct word.

(a) (i) The probability of getting an **odd** number on the spinner is

Impossible	☐
Unlikely	☑
Evens	☐
Likely	☐
Certain	☐

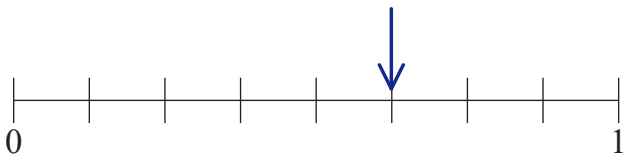
[1]

(ii) The probability of getting a **multiple of 2** on the spinner is

Impossible	☐
Unlikely	☐
Evens	☐
Likely	☑
Certain	☐

[1]

(b) Mark, with an **arrow** on the probability line below, the probability of getting a prime number on this spinner.



primes: 2, 2, 2, 3, 3 so P(prime) = $\frac{5}{8}$

[1]

[Turn over

2 **(a)** Graham has £258 in his bank account.

Laura has £164 in her bank account.

(i) How much money have they altogether?

258 + 164 = 422

Answer £ 422 [1]

(ii) How much more money has Graham than Laura?

258 − 164 = 94

Answer £ 94 [1]

(iii) Graham spends $\frac{1}{3}$ of his money.

How much money does he spend?

258 ÷ 3 = 86

Answer £ 86 [1]

(b) Laura has a part-time job and earns £8 per hour.

She is due a 10% pay rise.

How much extra will she earn per hour?

10% of £8 = 8 ÷ 10 = £0.80 = 80p

Answer 80 p [1]

3 **(a)** **Estimate** 6.1 × 398

Show your working out clearly.

6.1 ≈ 6, 398 ≈ 400

6 × 400 = 2400

Answer 2400 [2]

(b) Eric estimates 97 × 1003 as 1 million.

Show that Eric is **not** correct.

97 ≈ 100, 1003 ≈ 1000

100 × 1000 = 100 000

100 000 is not 1 million (1 000 000),

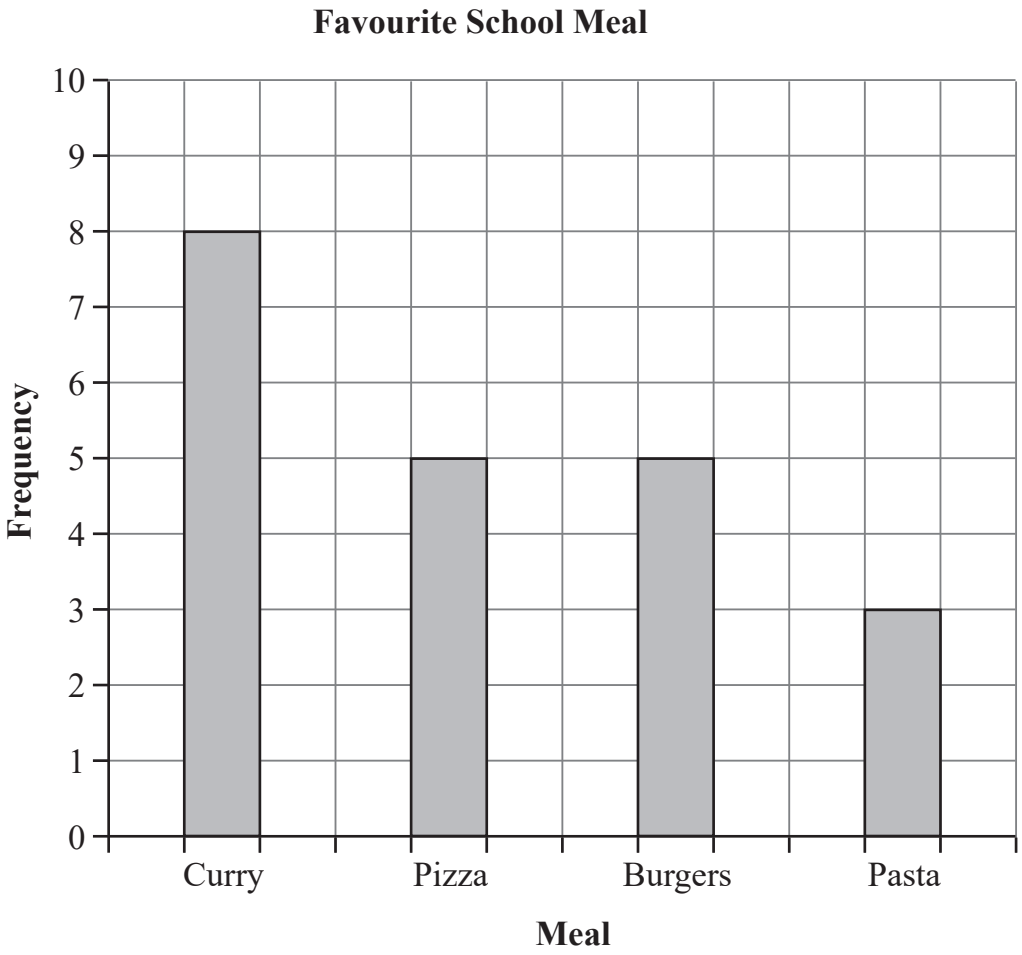
so Eric is not correct.

[1]

[Turn over

4 Andy asks his classmates what their favourite school meal is.

He displays their answers in a bar chart.



Andy asks one of his classmates at random about their choice.

(a) What is the **probability** that they say pasta is their favourite school meal?

Give your answer as a fraction.

Total = 8 + 5 + 5 + 3 = 21 $P(\text{pasta}) = \frac{3}{21} = \frac{1}{7}$

Answer $\frac{3}{21}$ [2]

(b) Is his classmate more likely to have chosen pizza or burgers as their favourite school meal?

Explain your answer clearly.

Answer Neither. Pizza and burgers were both chosen by 5 people, so the probability of each is 5 out of 21. They are equally likely. [1]

[Turn over

5 Tick [✔] the correct box to show the best unit to measure each of the following.

(a) The time taken to boil an egg.

Minutes	✓
Hours	
Days	

[1]

(b) The distance travelled in a one-hour car journey.

Inches	
Yards	
Miles	✓

[1]

(c) The mass of a large dog.

Grams	
Kilograms	✓
Tonnes	

[1]

6 Terri buys

1 bag of crisps for £1.30

1 bar of chocolate for £1.40

2 packets of sweets at 75p each.

Terri pays with a £5 note.

Terri is given 80p change.

Is this the correct change?

Explain your answer clearly.

1.30 + 1.40 = 2.70

2 × 0.75 = 1.50

2.70 + 1.50 = £4.20 spent

5.00 − 4.20 = £0.80 = 80p

Answer Yes because she spent £4.20 and £5 − £4.20 = 80p, so the change is correct [3]

[Turn over

7 Eggs are sold in boxes of six.

Each box costs £1.75

Charlie needs 44 eggs.

How much will it cost Charlie to buy enough eggs?

44 ÷ 6 = 7 remainder 2

7 boxes is not enough, so 8 boxes needed

8 × 1.75 = 8 + 6 = 14.00

(8 × 1 = 8, 8 × 0.75 = 6)

Answer £ 14.00 [3]

8 A rectangular wall measures 4.7 metres by 2.9 metres.

Tiles cost £29.75 per square metre.

Estimate the cost to tile the wall.

Show your working out clearly.

$4.7 \approx 5, \quad 2.9 \approx 3, \quad 29.75 \approx 30$

Area $\approx 5 \times 3 = 15\ m^2$

Cost $\approx 15 \times 30 = £450$

Answer £ 450 [3]

[Turn over

9 How much bigger is 35% of £120 than $\frac{1}{3}$ of £120?

$\frac{1}{3}$ of 120 = 120 ÷ 3 = 40

10% of 120 = 12

30% of 120 = 36

5% of 120 = 6

35% of 120 = 36 + 6 = 42

42 − 40 = 2

Answer £ 2 [3]

10 **(a)** A square number and a cube number add together to give a total of 52

Write down the two numbers.

Squares: 1, 4, 9, 16, 25, 36, 49

Cubes: 1, 8, 27

$25 + 27 = 52$ $(5^2 = 25,\ 3^3 = 27)$

Answer 25 and 27 [1]

(b) Write down the triangular number between 40 and 50

Triangular numbers: 1, 3, 6, 10, 15, 21, 28, 36, 45, 55

Answer 45 [1]

[Turn over

11 Jackie chooses chips or mash or baby boiled potatoes for a side order.

The probability she chooses chips is 0.65

The probability she chooses mash is 0.2

What is the probability that Jackie chooses baby boiled potatoes?

$0.65 + 0.2 = 0.85$

$1 - 0.85 = 0.15$

Answer 0.15 [2]

12 **(a)** 2 cm represents 15 km on a map.

How many kilometres are represented by 12 cm on the map?

12 ÷ 2 = 6

6 × 15 = 90 km

Answer 90 km [2]

(b) A different map has a scale of 1: 25 000

John measures the distance between two points on this map to be 8 cm.

Is the actual distance, in km, between these two points greater than 10 km?

Show your working out clearly.

8 × 25 000 = 200 000 cm

200 000 cm = 2000 m = 2 km

2 km is less than 10 km

Answer No, 2 km [2]

[Turn over

13 The ratio of girls to boys in an athletics club is 3:5

There are 45 **boys** in the club.

$\frac{1}{4}$ of the children are sprinters.

How many children are sprinters?

45 ÷ 5 = 9

Girls = 3 × 9 = 27

Total = 45 + 27 = 72

$\frac{1}{4}$ of 72 = 72 ÷ 4 = 18

Answer 18 [3]

14 Hilary is ordering T-shirts for a school trip.

She has to pay a £60 design fee and an amount for each T-shirt.

The total cost of 40 T-shirts is £380

What is the **total** cost of 30 T-shirts?

380 − 60 = 320

320 ÷ 40 = £8 per T-shirt

30 × 8 = 240

60 + 240 = £300

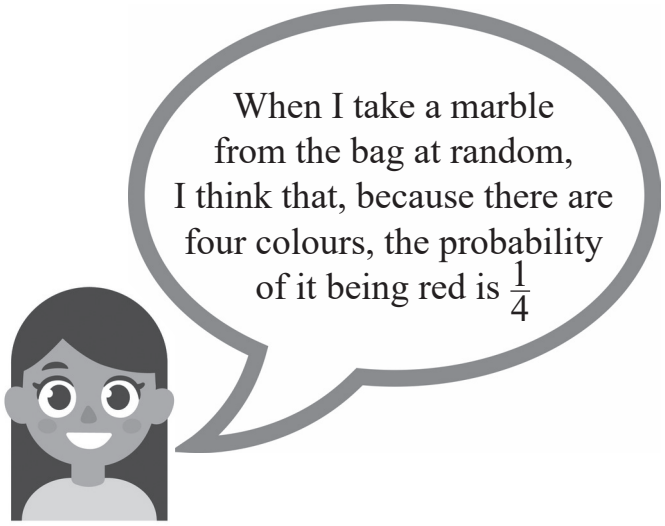
Answer £ 300 [4]

[Turn over

15 (a) A bag contains 20 coloured marbles.

The marbles are coloured red, green, blue and orange.

Rosie says



Explain why Rosie **might not** be correct in what she thinks.

Answer *There might not be the same number of each colour, so P(red) is only 1/4 if there are 5 red marbles in the bag* [1]

(b) A different bag contains 20 coloured marbles.

The marbles are coloured red, green, blue and orange.

The bag has 2 red marbles and 7 green marbles.

The probability of choosing a blue marble is $\frac{2}{5}$

How many orange marbles are there in the bag?

$\frac{2}{5}$ of 20 = 20 ÷ 5 × 2 = 8 blue

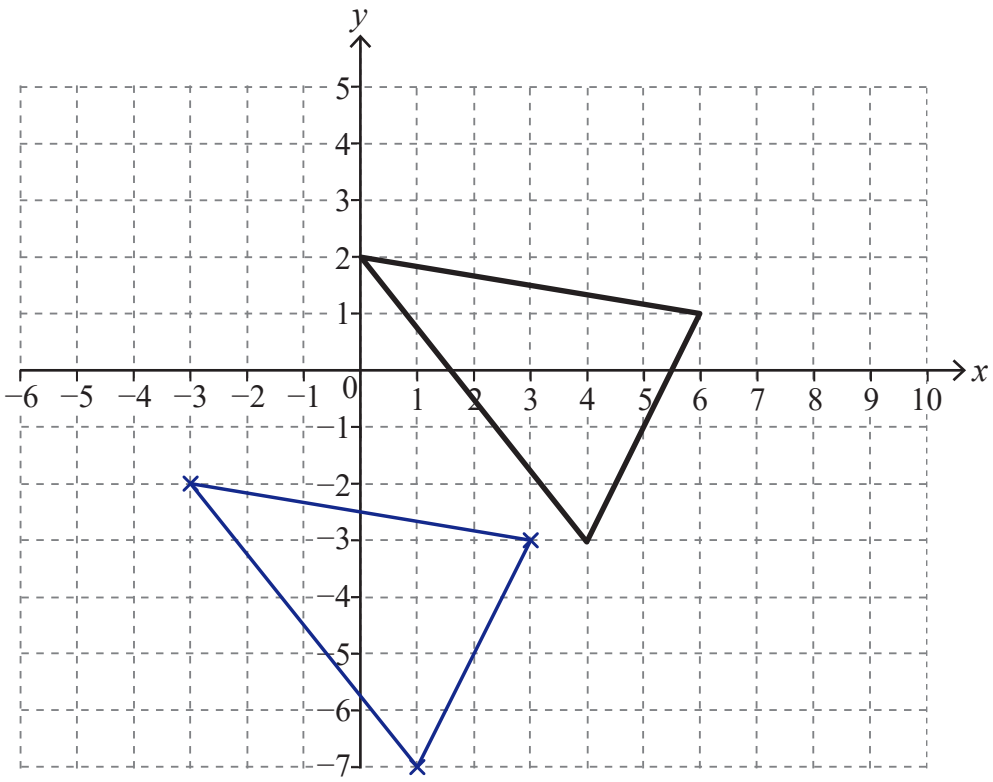
2 + 7 + 8 = 17

20 − 17 = 3 orange

Answer 3 [2]

[Turn over

16 (a) Draw the image of the triangle shown after a translation of 3 units left and 4 units down.



[2]

(b) A different triangle, PQR, was translated 4 units right and 6 units down.

The **image** of the point P **after** this different translation is (8 , –4)

What were the coordinates of the original point P?

x: 8 − 4 = 4, y: −4 + 6 = 2

Answer (4 , 2) [2]

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Examiner Number

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