

GCSE (9–1) Mathematics J560/03 Paper 3 (Foundation Tier)

Practice Paper – Set 3 Time allowed: 1 hour 30 minutes



You may use:

- A scientific or graphical calculator
- Geometrical instruments
- Tracing paper



First name										
Last name										
Centre number						Candidate number				

INSTRUCTIONS

- Use black ink. You may use an HB pencil for graphs and diagrams.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Read each question carefully before you start your answer.
- Where appropriate, your answers should be supported with 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 required but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the barcodes.

INFORMATION

- The total mark for this paper is **100**.
- The marks for each question are shown in brackets [].
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- This document consists of **24** pages.

Answer **all** the questions

1 (a) Complete.

The numbers 25 and 40 have two common factors, 1 and [1]

(b) Write down a multiple of 11 between 108 and 130.

(b) [1]

2 (a) Change $\frac{5}{8}$ to a decimal.

(a) [1]

(b) Change 80% to a fraction in its lowest terms.

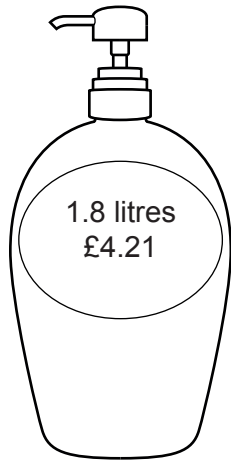
(b) [2]

(c) Write these in order, starting with the smallest.

43% 0.4 $\frac{3}{7}$ $\sqrt{0.2}$

(c) , , , [3]
smallest

3 (a) A supermarket sells washing liquid in two sizes.



Large



Small

Which size is better value for money?
Show how you decide.

(a) [3]

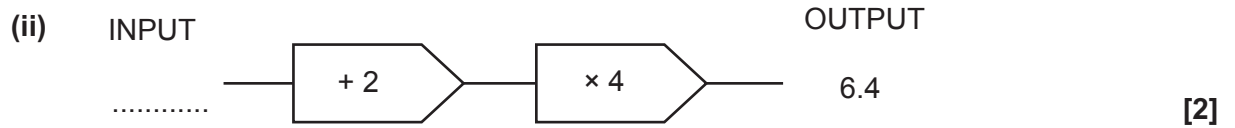
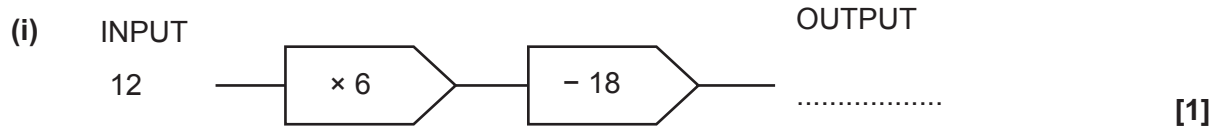
(b) This is part of a label on a box of cereal.

	100 g contains	25 g contains
Total fat	1.6 gg
Saturated fatg	0.09 g

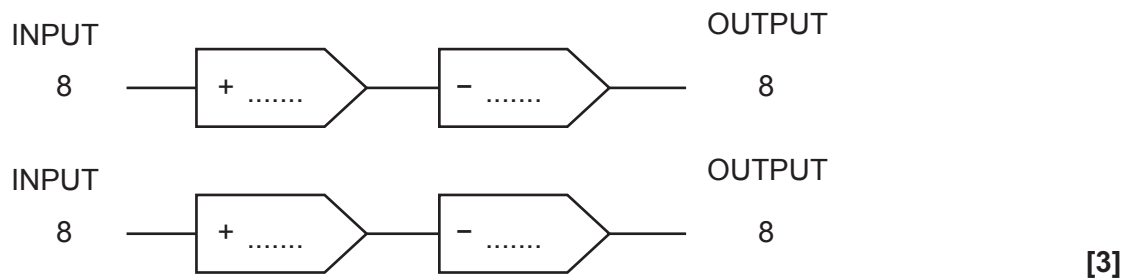
Complete this part of the label.

[2]

4 (a) Complete these number machines.



(b) (i) Complete each number machine in a different way.



(ii) Explain why there are more ways to complete part (b)(i).

.....

.....

.....

..... [1]

- 5 (a) (i) Three people type 3600 labels in 8 hours.

How many hours should it take four people to type 3600 labels?

(a)(i) hours [2]

- (ii) Give a reason why it may take a different time than you found in part (a)(i) to type the 3600 labels.

.....
 [1]

- (b) Pierre and Alice are each paid the same amount for each hour they work.

Pierre is paid £240. He works for $\frac{4}{5}$ of the time Alice works.

How much is Alice paid?

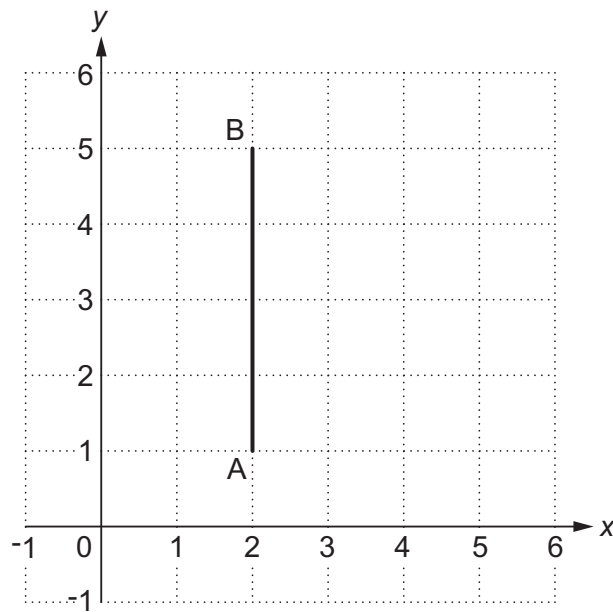
(b) £ [2]

- (c) Pierre changes £250 into euros.
 £1 is worth 1.26 euros.

How many euros does he receive?

(c) euros [2]

- 6 The line joining A (2, 1) to B (2, 5) is drawn on a one centimetre grid.



- (a) AB is the **longest** side of a right-angled isosceles triangle, ABC.

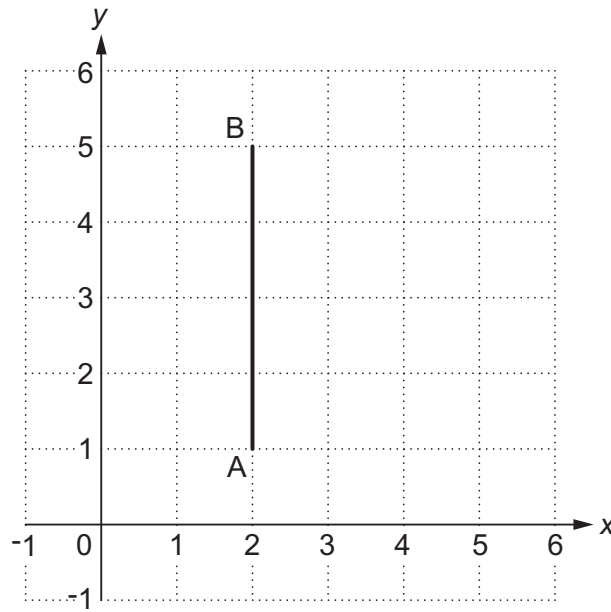
(i) Mark a position for point C on the diagram.

[1]

(ii) Write down the coordinates of point C.

(a)(ii) (..... ,) [1]

(b) On this grid, AB is one side of a rectangle ABPQ with perimeter 12 cm.



Find the coordinates for the positions of P and Q.
Two different answers are possible.

(b) First answer: P (.....,) and Q (.....,)

Second answer: P (.....,) and Q (.....,) [3]

- 7 At the start of 2017 there are 4000 fish in a lake.
Each year, the number of fish increases by 20% of 4000.

Find the number of fish at the end of 2019.

..... [3]

- 8 Two fair 4-sided spinners are each numbered 1, 2, 3 and 4. Both spinners are spun and the numbers landed on are added. The possible totals are shown in the table.

		Spinner A			
		1	2	3	4
Spinner B	1	2	3	4	5
	2	3	4	5	6
	3	4	5	6	7
	4	5	6	7	8
	+	1	2	3	4

- (a) What is the probability of getting a total of 2?

(a) [1]

- (b) Spinner A lands on 3.

Explain why it is not possible to get a total of 3.

.....
 [1]

- (c) Which total has a probability of $\frac{1}{4}$?

Show how you decide.

(c) [2]

- 9 (a) (i) By rounding each number correct to 1 significant figure, estimate the value of the following. Show all your working.

$$\frac{12.3 + 7.92}{9.6 \times 0.625}$$

(a)(i) [2]

- (ii) Work out.

$$\frac{12.3 + 7.92}{9.6 \times 0.625}$$

Give your answer correct to 1 decimal place.

(ii) [2]

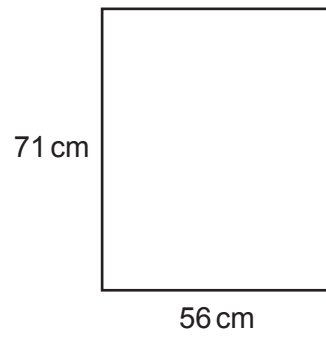
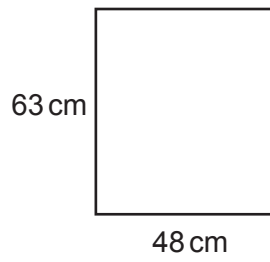
- (b) 20% of the mass of a cauliflower is 90 grams.

Find the mass of the cauliflower.

(b) g [2]

10

10 Here are two rectangles.

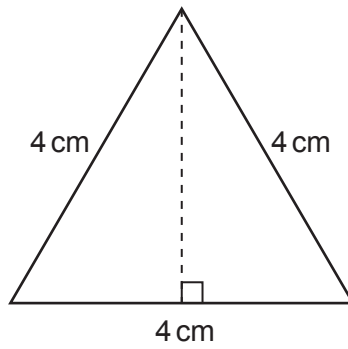


Not to scale

Are the rectangles mathematically similar?
Show your reasoning.

[3]

11 The diagram shows an equilateral triangle.



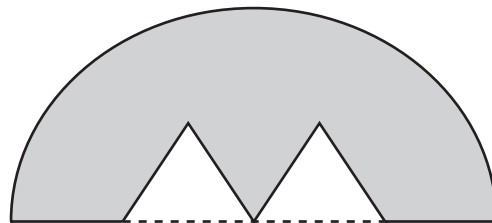
Not to scale

(a) (i) Show that the height of the equilateral triangle is 3.46 cm, correct to 3 significant figures. [3]

(ii) Find the area of the equilateral triangle.

(a)(ii) cm² [2]

(b) Two of these equilateral triangles are cut from a semi-circle with diameter 16 cm.



Not to scale

Calculate the shaded area.
Give your answer correct to 3 significant figures.

(b) cm² [4]

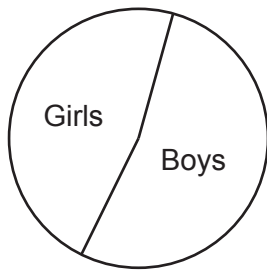
12 (a) Three schools provide this information.

- $\frac{3}{7}$ of the pupils at Harwood are girls.
- 42% of the pupils at Crompton are girls.
- The ratio of girls to boys at Astley is 4 : 5.

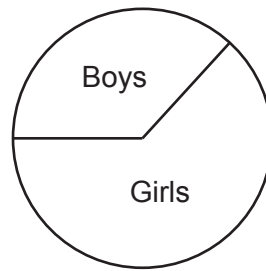
Write the schools in the order of their proportion of girls, lowest to highest.
Show how you reached your answer.

(a) [4]
lowest

(b) The pie charts below show the proportion of boys and girls at two other schools.



Beechfield



Kenwood

Neil says

The pie charts show that there are more girls at Kenwood than at Beechfield.

Explain why Neil may be wrong.

.....

.....

..... [1]

13 These are two of the five ingredients used to make 50 chocolate truffles.

Dark chocolate	300g
Cream	200g

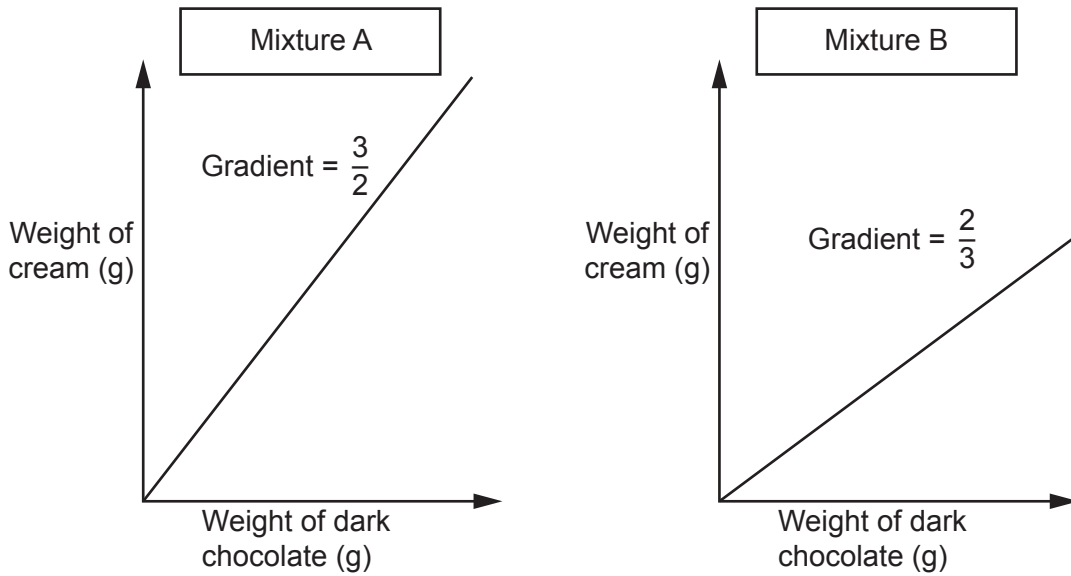
(a) (i) Felix says that 50 truffles weigh 500g so each truffle weighs 10g.

Explain why Felix is not correct.

.....

..... [1]

(ii) These sketch graphs show the weights of dark chocolate and cream in two different mixtures.



Decide whether mixture A or mixture B is the mixture for chocolate truffles. Show your reasoning.

.....

.....

.....

..... [3]

(b) Another recipe has these ingredients.

Dark chocolate	300 g
Cream	175 ml

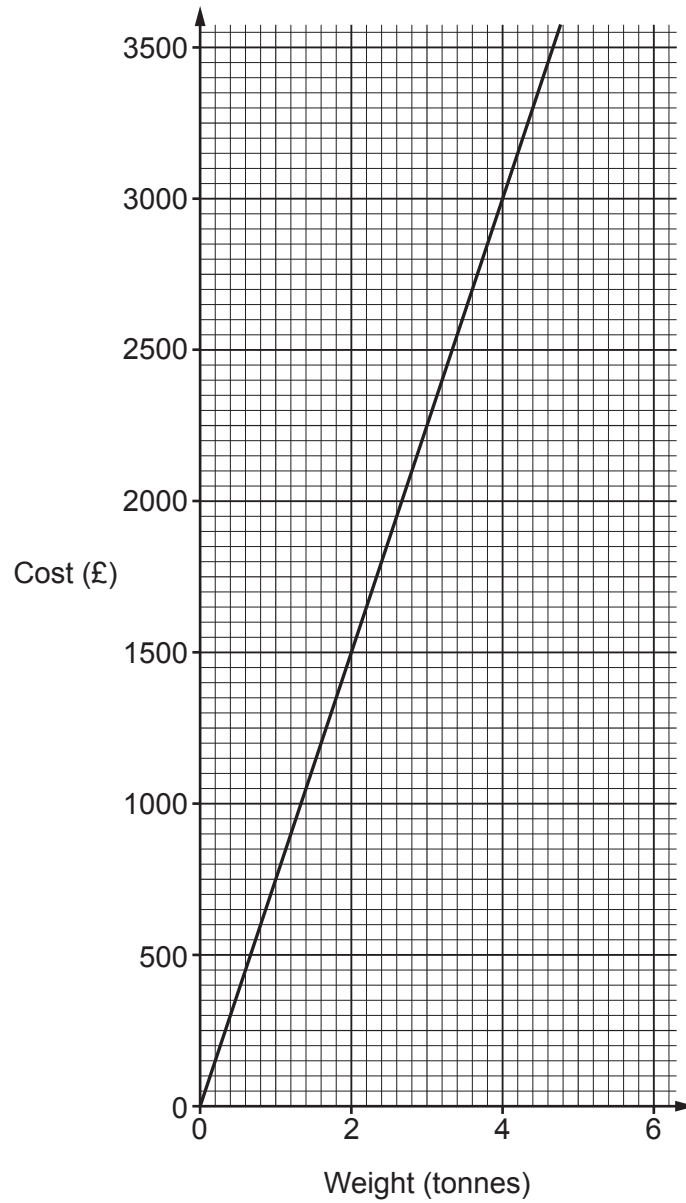
100 ml of cream weighs 99 g.

The ratio of the weight of dark chocolate to the weight of cream can be written in the form $1 : n$.

Find the value of n .

(b) $n = \dots\dots\dots$ [3]

14 The graph below shows the cost of aluminium by weight.



(a) Write down the cost of 3 tonnes of aluminium.

(a) £ [1]

(b) (i) Work out the cost of 17 tonnes of aluminium.

(b)(i) £ [3]

(ii) What assumption have you made about the cost of aluminium in your calculations for part (b)(i)?

.....

 [1]

15 The probability of each outcome of a computer game is shown in the table below.

Outcome	Win	Lose	Draw
Probability	0.3	0.25	

(a) Complete the table. [2]

(b) Cynthia plays the game 30 times.

(i) Calculate the number of times Cynthia should expect to win.

(b)(i) [2]

(ii) Cynthia wins the game 4 times.

She says

I should have won more times.

Explain why she may be wrong.

.....
 [1]

- 16 Edeston village has a population of 3500 people.
 A new road is planned.
 In a survey, school pupils are asked if they are for or against the new road.

	Number of pupils
For	36
Against	24

Hugo assumes responses from the whole village will be in the same proportion as those from the pupils.

- (a) Use Hugo’s assumption to calculate how many people in Edeston are against the new road.

(a) [3]

- (b) Explain why the responses from the whole village may **not** be in the same proportion as the responses from the pupils.

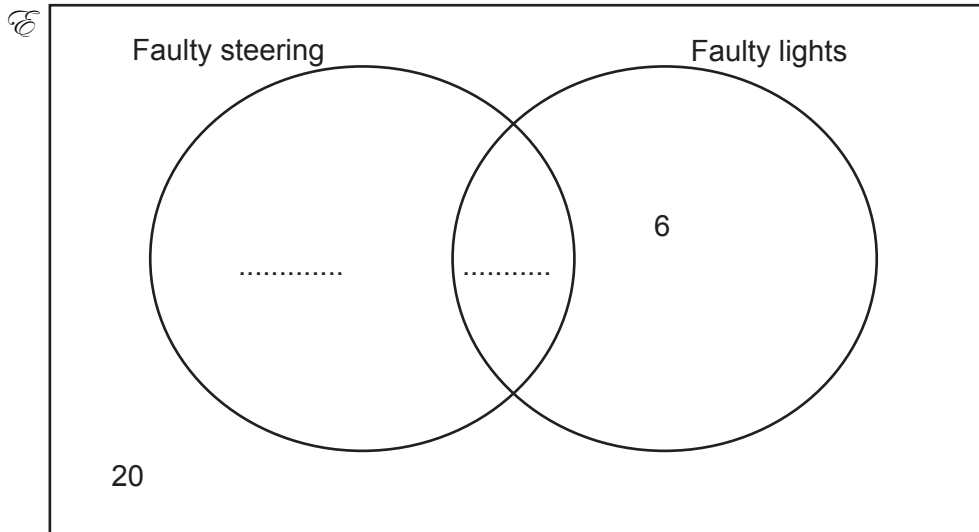
.....

 [1]

17 A mechanic tested the steering and lights of 50 cars.

- 20 cars did not have a fault.
- 6 cars had **only** faulty lights.
- 8 cars had both faults.

(a) Using this information, complete the Venn diagram below.



[2]

(b) A car is chosen at random from the cars that had faulty lights.

What is the probability that this car also had faulty steering?

(b) [2]

- 18 (a) Two disks each have a different number written on the other side.

The diagram shows the numbers on one side of each disk.



The disks are spun and the two numbers they land on are added.
The four possible totals are 1, 4, 5 and 8.

Find one possible solution for the number on the other side of each disk.

(a) Disk A

Disk B [3]

- (b) Find the value of a , the value of b and the value of c .

$$\begin{aligned} a + a + a &= 6 \\ a + b - c &= -4 \\ a + b + b &= -2 \end{aligned}$$

(b) $a =$

$b =$

$c =$ [5]

(c) Simplify.

$$f^2 \times f^4$$

(c) [1]

- 19 Show that the mean of 5 consecutive numbers is always equal to the median of the 5 numbers. [4]

END OF QUESTION PAPER

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