

General Certificate of Secondary Education

GCSE AQA Mathematics (Grade 9-1) Foundation Tier

Centre name					
Centre number					
Candidate number					

Practice Set 2 Paper 3: Calculator

Time allowed: 1 hour 30 minutes

Surname
Other names
Candidate signature

In addition to this paper you should have:

- A pen, pencil and eraser.
- A ruler.
- A protractor.
- A pair of compasses.
- A calculator.



Instructions to candidates

- Write your name and other details in the spaces provided above.
- Answer all questions in the spaces provided.
- In calculations show clearly how you worked out your answers.
- Calculators may be used — if your calculator doesn't have a π button, take the value of π to be 3.142

Information for candidates

- There are 80 marks available for this paper.
- The marks available are given in brackets at the end of each question.
- You may get marks for method, even if your answer is incorrect.

Advice to candidates

- Work steadily through the paper.
- Don't spend too long on one question.
- If you have time at the end, go back and check your answers.

For examiner's use			
Q	Mark	Q	Mark
1		14	
2		15	
3		16	
4		17	
5		18	
6		19	
7		20	
8		21	
9		22	
10		23	
11		24	
12		25	
13			
Total			

Answer ALL the questions.

Write your answers in the spaces provided.

You must show all of your working.

1 Which of these numbers is a factor of 128? Circle your answer.

6

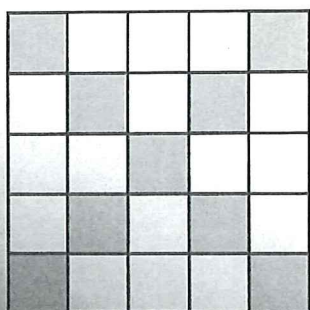
7

8

9

[Total 1 mark]

2 (a) What fraction of this shape is shaded?



Circle your answer.

$$\frac{10}{25}$$

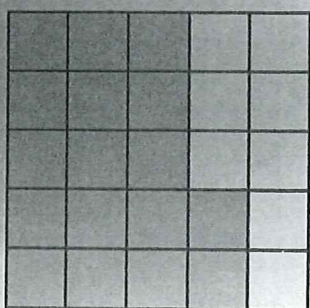
$$\frac{9}{25}$$

$$\frac{1}{5}$$

$$\frac{9}{20}$$

[1]

(b) What is the ratio of shaded squares to unshaded squares in this shape?



Circle your answer.

17:25

17:8

25:17

8:17

[1]

[Total 2 marks]

3 What is the formula to find the area of a parallelogram with height h and width w ?
Circle your answer.

$$h \times w$$

$$\frac{1}{2} \times h \times w$$

$$\frac{h^2}{w}$$

$$\frac{1}{2}(h + w) \times h$$

[Total 1 mark]

4 Round each of the following recurring decimals to 4 decimal places:

(a) $0.\dot{6}$

.....
[1]

(b) $0.8\dot{2}$

.....
[1]

[Total 2 marks]

5 Two fair spinners numbered 1-4 are spun and the scores are added together. The possible outcomes are shown in the sample space diagram below.

		Spinner 1			
		1	2	3	4
Spinner 2	1	2	3	4	5
	2	3			6
	3	4			
	4	5	6	7	8

(a) Fill in the missing numbers in the sample space diagram.

[1]

(b) What is the probability of scoring a total of 8 when the two spinners are spun?

.....
[1]

[Total 2 marks]

6 Here is an order form for some sports equipment.

Leave blank

Product	Quantity	Unit Price	Amount
Football	4	£4.89	£19.56
Rounders bat		£7.35	£22.05
Team bib	7		
Total:			£57.01

Fill in the gaps on the order form.

[Total 3 marks]

7 Alicia buys milk from the supermarket every 3 days and bread every 7 days. She buys both items together on the 1st September.

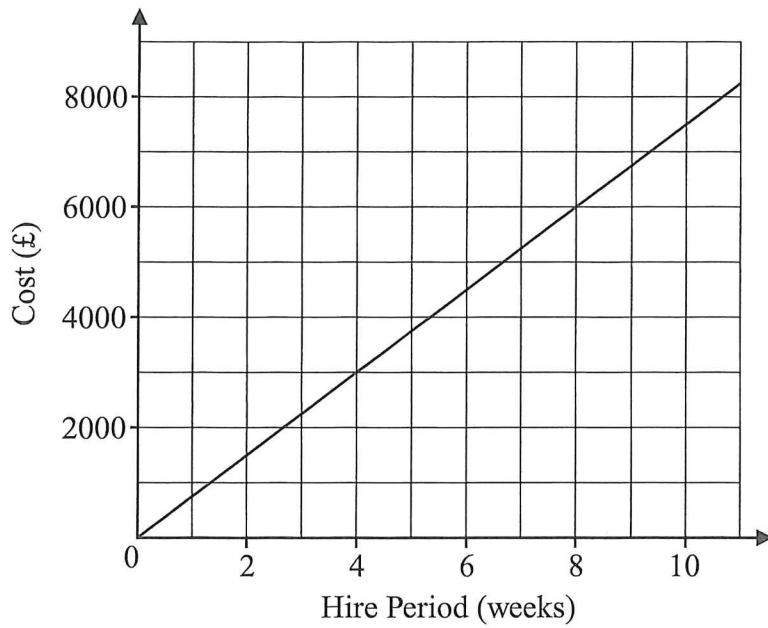
On what date will she next buy both items together?

.....
[Total 2 marks]

8 Find 158% of 350

.....
[Total 2 marks]

9 The graph shows the cost of hiring a crane from Cranleigh's Construction Hire.



(a) A building company hires a crane and is charged £6000.
For how many weeks did they hire the crane?

..... weeks
[1]

(b) Use the graph to find the cost of hiring a crane for 6 weeks.

£
[1]

(c) Find the gradient of the line.

.....
[2]

(d) What does the gradient tell you about the cost of hiring the crane?

.....
.....
[1]

[Total 5 marks]

10 Using the formula $v = u + at$,

(a) find the value of v when $a = 2$, $t = 4$ and $u = 3$

$v = \dots\dots\dots$
[1]

(b) find the value of u when $t = 3$, $a = 0.5$ and $v = 13.2$

$u = \dots\dots\dots$
[2]

[Total 3 marks]

11 The ratio of the number of paid-for apps to free apps on Matilda's tablet is 3 : 5

(a) What fraction of the apps on Matilda's tablet were free? Circle your answer.

$\frac{3}{5}$

$\frac{3}{8}$

$\frac{5}{8}$

$\frac{1}{3}$

[1]

The ratio of the number of game apps to non-game apps on Matilda's tablet is 2 : 7
She has 72 apps altogether.

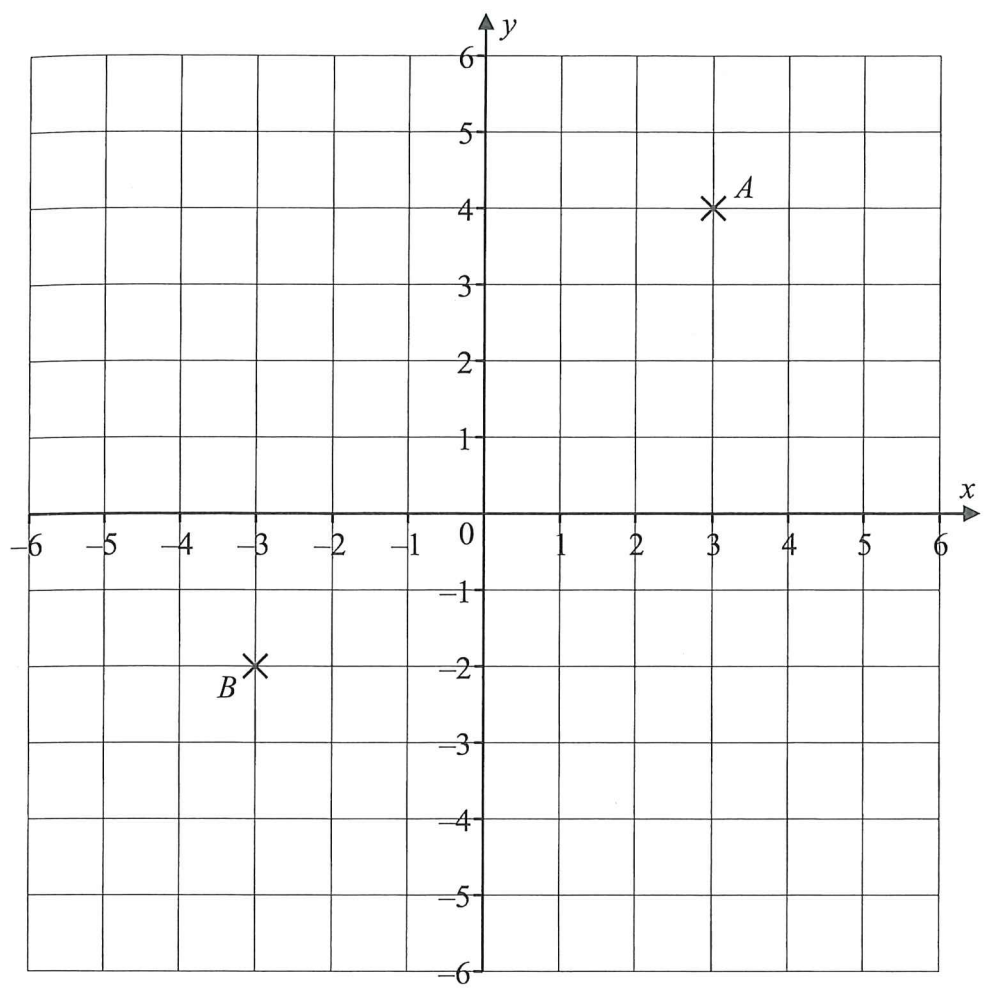
(b) How many game apps does she have on her tablet?

$\dots\dots\dots$
[2]

[Total 3 marks]

12 Points A and B are shown on the coordinate grid below.

Leave blank



(a) Mark points C and D on the grid above so that $ACBD$ is a square.

[1]

(b) Find the equation of the straight line passing through points A and B .

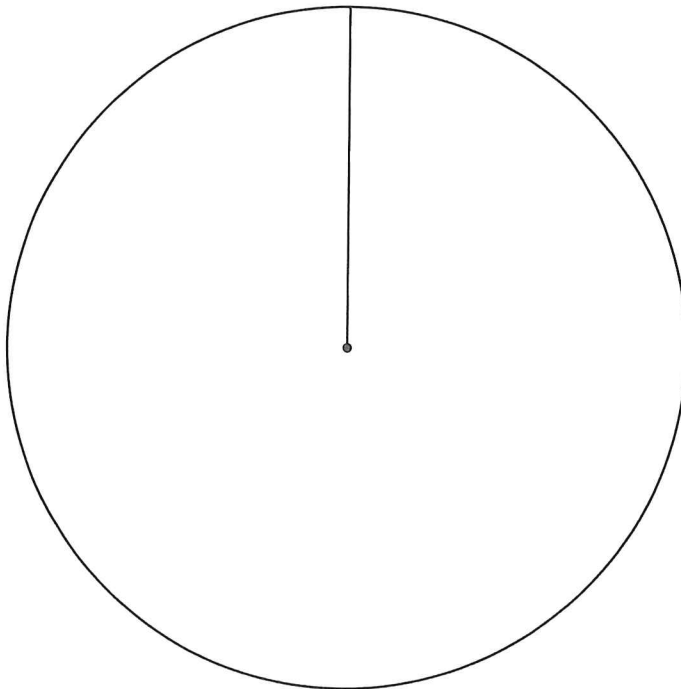
.....
[2]

[Total 3 marks]

- 13 The table shows the number of sandwiches sold at a café one Tuesday lunchtime.

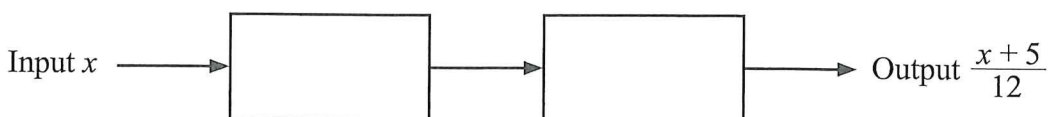
Sandwich filling	Frequency
Egg mayo	15
BLT	20
Cheese	30
Tuna mayo	25

Show this information on the pie chart below.



[Total 3 marks]

- 14 This 2-step function machine takes an input x and outputs $\frac{x+5}{12}$.
Fill in the boxes to show each step of the function machine.



[Total 2 marks]

Leave
blank

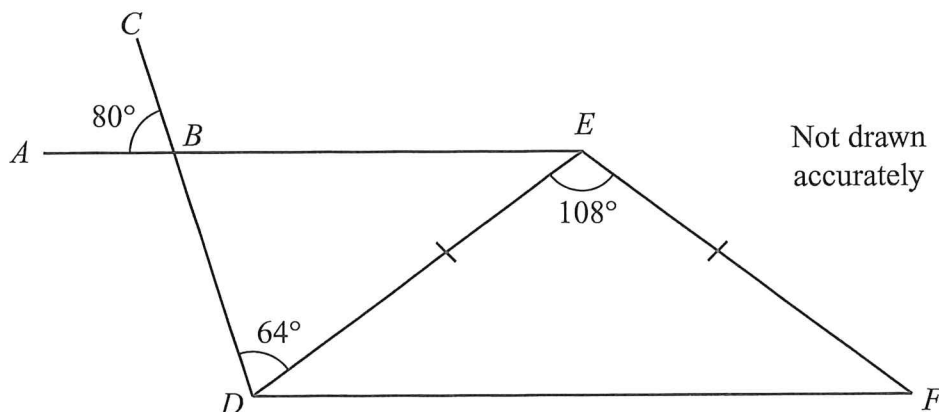
15 Calculate $\frac{9^{17} \times 9^6}{9^2}$

Give your answer as a power of 9.

Leave
blank

.....
[Total 2 marks]

- 16 AE and CD are straight lines.
Lines ED and EF are equal in length.
Angle $ABC = 80^\circ$, angle $BDE = 64^\circ$ and Angle $DEF = 108^\circ$.



Show that angle $FDE =$ angle BED .
You must give a reason for each stage of your working.

.....
[Total 4 marks]

17 The following are all types of sequences.

Geometric	Arithmetic	Quadratic	Fibonacci
-----------	------------	-----------	-----------

Choose a word from the box that best describes each of these sequences.

(a) 10, 13, 16, 19, 22, 25,...

.....
[1]

(b) 1, 1, 2, 3, 5, 8, 13 ...

.....
[1]

(c) 64, 32, 16, 8, 4, 2, ...

.....
[1]

[Total 3 marks]

18 In January 2010, Hamed bought a flat for £95 000.
Each year after he bought it, the value rose by 6.5%.

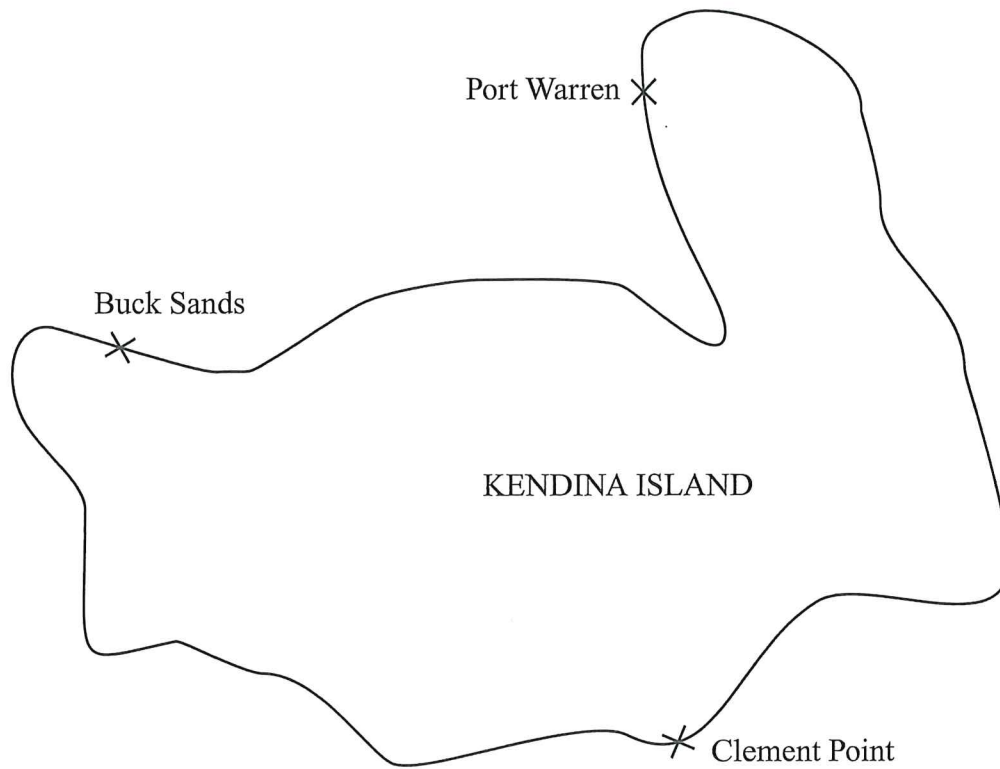
What was the flat worth in January 2014?
Give your answer correct to the nearest £100.

£

[Total 3 marks]

- 19 A map of Kendina Island is shown below.

Leave
blank



- (a) Use compasses and a ruler to draw a line showing all of the points that are the same distance from Buck Sands and Clement Point. Construction lines must be clearly visible.

[2]

The scale on the map is 1 cm : 2 km.

A café on Kendina Island is located within 10 km of Port Warren.

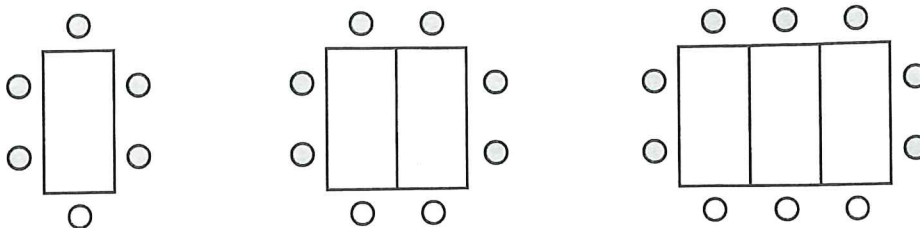
The café is closer to Clement Point than Buck Sands.

- (b) Shade the area on the map where the café could be.

[3]

[Total 5 marks]

- 20 At a banquet, 6 people can be seated around a single rectangular table.
 2 rectangular tables are pushed together to seat 8 people.
 3 rectangular tables are pushed together to seat 10 people.



- (a) How many people could be seated around 4 tables pushed together?
 Circle your answer.

12

14

16

18

[1]

- (b) How many people could be seated around n tables pushed together?

.....
 [2]

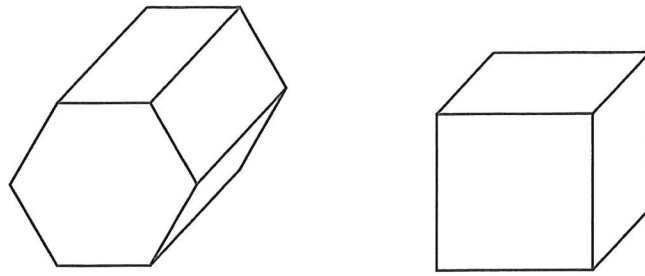
- (c) How many tables would need to be pushed together to seat 32 people?

.....
 [2]

[Total 5 marks]

- 21 A hexagonal prism and a cube are shown below.

Leave
blank



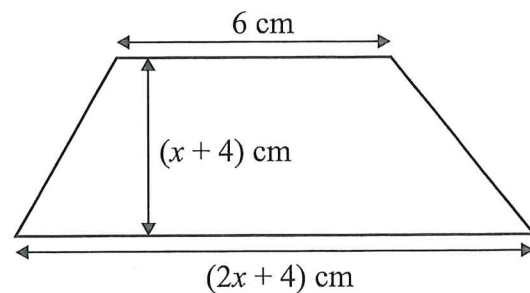
For each shape, the ratio of the number of faces to the number of vertices can be written in the form $1 : n$.

Which shape gives a greater value of n ?
You must show all of your working.

.....
[Total 4 marks]

- 22 The diagram on the right shows a trapezium.

Write an expression, in terms of x , for the area of the trapezium. Fully simplify your answer.



..... cm^2
[Total 3 marks]

23 Delia rolls out 200 g of pastry.
When she rolls it out to a thickness of 0.25 cm, she can cut out 42 discs.

*Leave
blank*

(a) How many discs could she cut out if the pastry was rolled to a thickness of 0.5 cm?

.....
[2]

(b) Delia makes another batch of pastry weighing 500 g.
She needs to be able to cut 210 discs from it.

What thickness will she need to roll the pastry to?

..... cm
[3]

[Total 5 marks]

- 24 At the beginning of the school year, the heights of all 98 Year 11 pupils at Cherry Grove School were measured and recorded. The table shows the results.

Leave blank

Height (h cm)	Frequency		
$140 < h \leq 150$	2		
$150 < h \leq 160$	22		
$160 < h \leq 170$	53		
$170 < h \leq 180$	18		
$180 < h \leq 190$	3		

- (a) What is the modal class interval? Circle your answer.

$150 < h \leq 160$

$160 < h \leq 170$

$170 < h \leq 180$

$180 < h \leq 190$

[1]

- (b) Calculate an estimate for the mean height.
Give your answer in cm, correct to 1 decimal place.

You can use the extra columns in the table to help you.

..... cm
[4]

- (c) Explain why your answer to part (b) is only an estimate for the mean rather than the actual mean.

.....
.....
.....

[1]

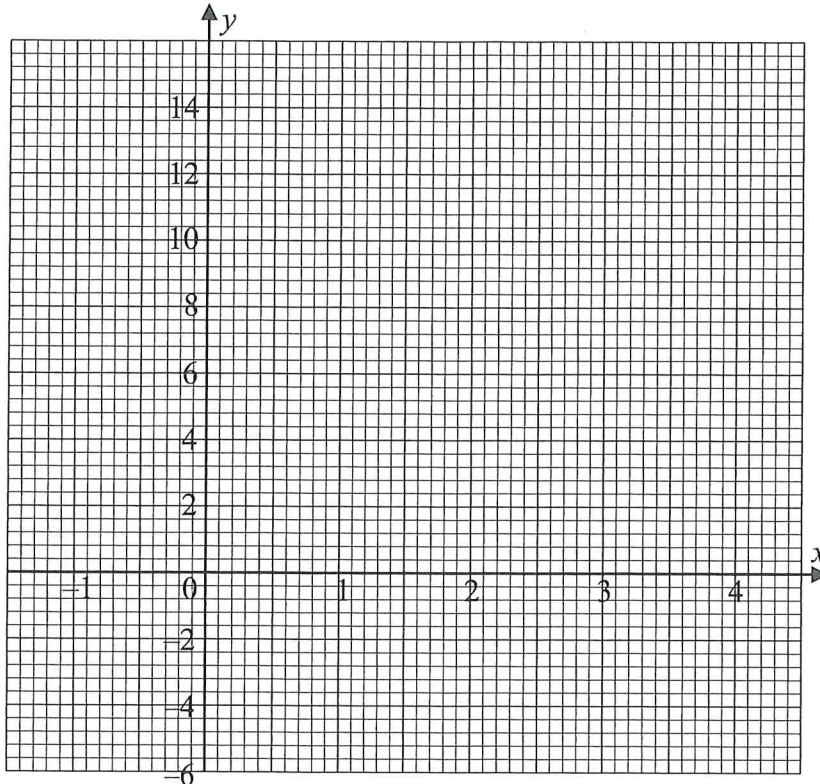
[Total 6 marks]

25 (a) Complete the table of values for $y = 2x^2 - 6x + 2$.

x	-1	0	1	2	3	4
y						10

[2]

(b) On the grid, draw the graph of $y = 2x^2 - 6x + 2$ for $x = -1$ to $x = 4$.



[2]

(c) Find the exact coordinates of the turning point of the curve $y = 2x^2 - 6x + 2$.

[2]

[Total 6 marks]

[TOTAL FOR PAPER = 80 MARKS]