AQA

Please write clearly in block capitals.

Centre number ☐☐☐☐☐   Candidate number ☐☐☐☐

Surname _____

Forename(s) _____

Candidate signature _____

GCSE MATHEMATICS   **F**

Foundation Tier   Unit 2   Number and Algebra

Friday 4 November 2016   Morning   Time allowed: 1 hour 15 minutes

Materials
For this paper you must have:
● mathematical instruments.
You must **not** use a calculator.

Instructions
● Use black ink or black ball-point pen. Draw diagrams in pencil.
● Answer **all** questions.
● You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
● Do all rough work in this book.

Information
● The marks for questions are shown in brackets.
● The maximum mark for this paper is 66.
● The quality of your written communication is specifically assessed in Questions 6 and 18. These questions are indicated with an asterisk (*).
● You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

Advice
● In all calculations, show clearly how you work out your answer.

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Answer **all** questions in the spaces provided.

1 (a) Work out $\frac{1}{4}$ of 32

[1 mark]

_____

Answer _____

1 (b) Work out   10% of 270

[1 mark]

_____

Answer _____

1 (c) Circle the decimal with the same value as 5%

[1 mark]

0.5   0.2   0.05   1.2

1 (d) Circle the fraction with the same value as 0.3

[1 mark]

$\frac{1}{30}$ $\frac{3}{10}$ $\frac{1}{3}$ $\frac{3}{100}$

1 (e) Write $\frac{3}{4}$ as a percentage.

[1 mark]

Answer _____%

2 Paul buys some teas and cakes.

Here is the bill.

Teas	2 × £1.20	£2.40
Cakes	_____ × 90p	_____
		_____
	Total	£6.00

How many cakes did he buy?

[2 marks]

_____

_____

_____

_____

Answer _____

3 I am thinking of three single-digit numbers.

The numbers are **different**.
The sum of the numbers is 22

What is the **least** possible value of the smallest number?

[2 marks]

_____

_____

_____

_____

Answer _____

9

4 (a)   Two odd numbers are

multiples of 9

and   between 40 and 70

What are the **two** numbers?

[2 marks]

_____

_____

Answer _____ and _____

4 (b)   Circle the number below that is **not** a factor of 56

[1 mark]

4   6   7   8

5 A sequence of patterns is made from sticks.

Pattern 1   Pattern 2   Pattern 3   Pattern 4

5 (a) Draw Pattern 5

[1 mark]

5 (b) Here is a rule for working out the number of sticks in a pattern.

$$4 \times \text{Pattern number} + 1$$

How many sticks are in Pattern 10?

[1 mark]

_____

Answer _____

5 (c) Tick the correct box for the number of sticks in a pattern.

The number of sticks

is always even   ☐

could be even or odd ☐

is always odd   ☐

[1 mark]

Turn over ▶

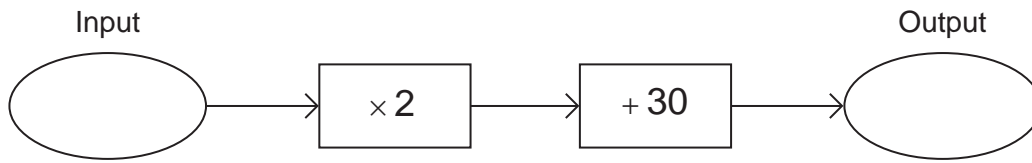*6   Ros buys 60 samosas.

Samosas

40p each

She is given 30% off the price.

How much does she pay altogether?

[4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer £ _____

7   Here is a number machine.

7 (a)   Work out the **output** when the input is 25

[1 mark]

_____

_____

Answer _____

7 (b)   Work out the **input** when the output is 64

[2 marks]

_____

_____

_____

Answer _____

Turn over for the next question

8 Here are the temperatures in four cities at 7 am

Belfast	Cardiff	London	Glasgow
–9 °C	–3 °C	–5 °C	–13 °C

8 (a) Which city had the highest temperature?
Circle your answer.

[1 mark]

Belfast   Cardiff   London   Glasgow

8 (b) What was the difference in temperature between London and Glasgow?

[1 mark]

_____

Answer _____°C

8 (c) At 1 pm the temperature in Belfast was 15 °C higher than at 7 am

What was the temperature in Belfast at 1 pm?

[1 mark]

_____

Answer _____°C

9   One-fifth of a number is 30

Work out half of the number.

[2 marks]

_____

_____

_____

Answer _____

10   Blue counters and red counters are in the ratio 2 : 5

What fraction of the counters are red?
Circle your answer.

[1 mark]

$\frac{2}{5}$ $\frac{5}{7}$ $\frac{3}{5}$ $\frac{2}{7}$

Turn over for the next question

6

Turn over ▶

11 This is what you need to make 20 pancakes.

Eggs	4
Flour	600 g
Milk	450 ml

Work out what you need to make 30 pancakes.

[2 marks]

_____

_____

_____

_____

Eggs _____

Flour _____ g

Milk _____ ml

12 (a)   Solve $\dfrac{x}{8} = 4$

[1 mark]

_____

$x =$ _____

12 (b)   Solve $6y - 13 = 29$

[2 marks]

_____

_____

_____

$y =$ _____

Turn over for the next question

5

13 (a) On the grid is line *L*.
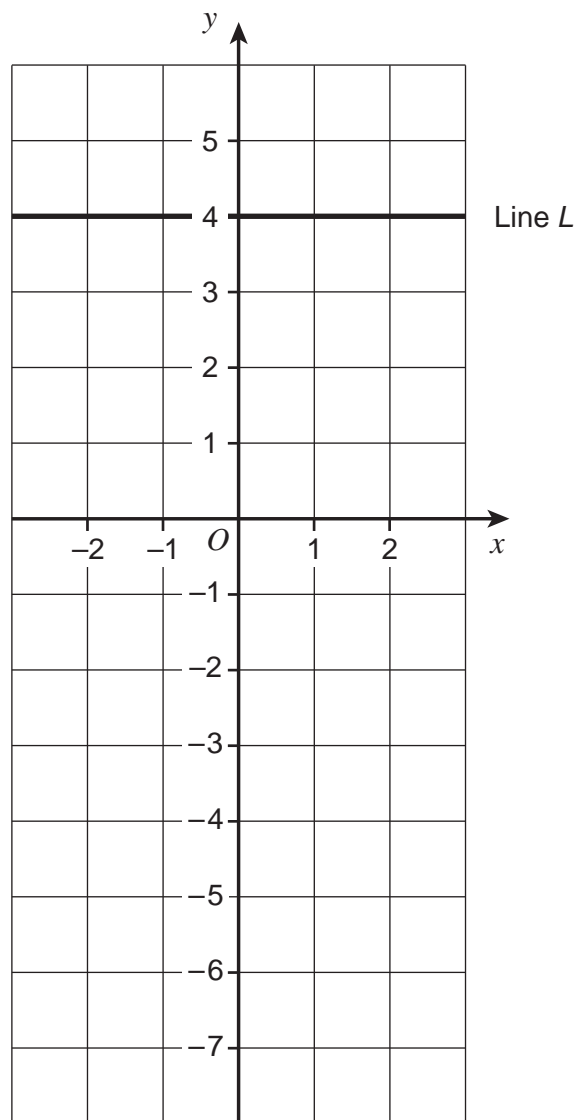
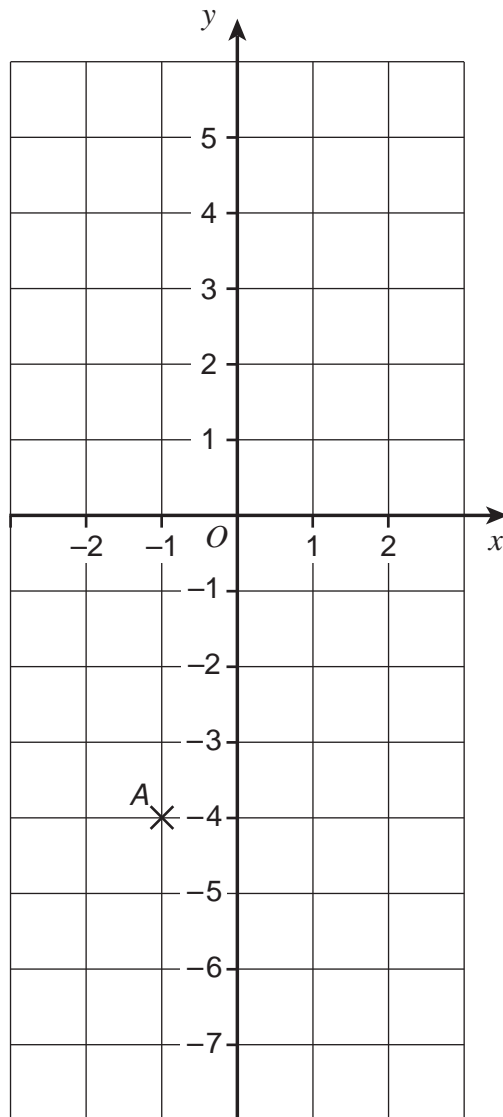Circle the equation of line *L*.

[1 mark]

$y = x + 4$ $y = 4$ $x = 4$ $x + y = 4$

13 (b) *A*, *B* and *C* are points on the line $y = 3x - 1$

A is (−1, −4)

B has *x*-coordinate 2

C has *y*-coordinate −1

Complete the coordinates of *B* and *C*.

[2 marks]

Answer   *B* (2 , _____)

C (_____ , −1)

14 (a)   Work out 0.7×0.3

[1 mark]

Answer _____

14 (b)   Work out $4.6 - 0.29$

[1 mark]

_____

_____

Answer _____

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

[2 marks]

$\dfrac{13}{20}$ 0.7   55%

Smallest _____

_____

Largest _____

15   Use approximations to estimate the value of $\dfrac{37 \times 304}{58}$

[2 marks]

_____

_____

_____

_____

_____

_____

Answer _____

16 (a)   Multiply out $3(2x - 7)$

[1 mark]

_____

_____

Answer _____

16 (b)   Factorise $x^2 + 8x$

[1 mark]

_____

_____

Answer _____

8

Turn over ▶

17 Work out the value of $2a^2 + b^3$ when $a = 5$ and $b = -3$

[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____

*18   Lisa wants to hire a car.

Company A	**Company B**
No charge for mileage	No daily charge
Normal price £66 each day	Normal price 75p each mile
Offer Now $\frac{1}{3}$ off	**Offer** Now 20% off

Which company is cheaper

    to hire a car for 15 days

    and

    drive 1000 miles?

You **must** show your working.

[5 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

8

Turn over ▶

19 This graph is used to work out the cost, C (£), to hire a drill for a number of days, d.
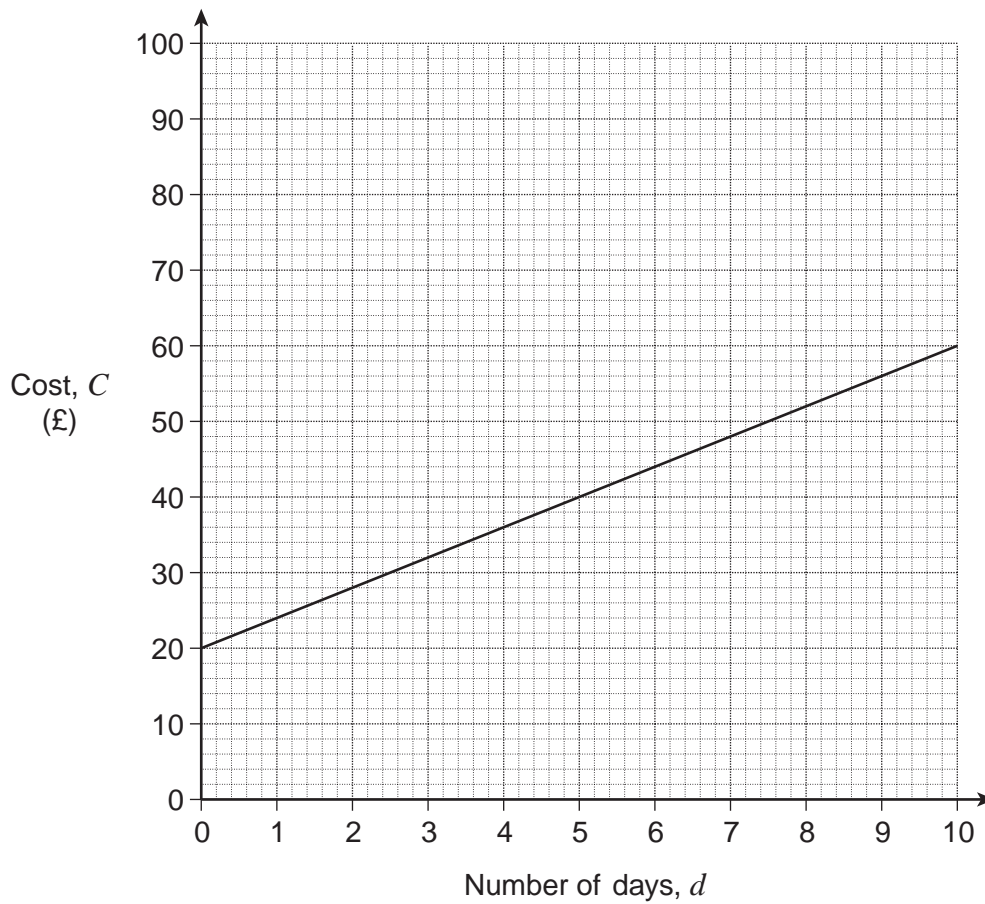
19 (a) Circle the correct formula for the cost, C, to hire a drill.

[1 mark]

$C = 20d + 4$ $C = 4d + 24$ $C = 4d + 20$ $C = 24d - 4$

19 (b) The cost of hiring a sander is given by the formula

$$C = 6d + 10$$

Dev hires a drill and a sander for the **same** number of days.
The **total** cost is £90

Work out the number of days that he hires the drill and sander.

[3 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____ days

20 Solve $4(x - 5) = x + 7$

[3 marks]

_____

_____

_____

_____

_____

$x =$ _____

7

Turn over ▶

21   Write 56 as a product of prime factors.

[2 marks]

Answer _____

22 A shop makes juice by mixing cranberry and orange in the ratio

cranberry : orange = 1 : 3

1 litre of cranberry costs 60p

1 litre of orange costs 40p

22 (a) Show that the cost of 20 litres of juice is £9

[2 marks]

_____

_____

_____

_____

_____

22 (b) The shop sells 1 litre of juice for 80p

Work out the profit for selling 60 litres of juice.

[3 marks]

_____

_____

_____

_____

_____

_____

Answer £ _____

END OF QUESTIONS

7

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