



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.



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	$2 \times \text{£}1.20$	$\text{£}2.40$
Cakes	_____ $\times 90\text{p}$	_____
Total		_____ $\text{£}6.00$

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 \_\_\_\_\_



- 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]

6

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]**

---

---

---

---

---

---

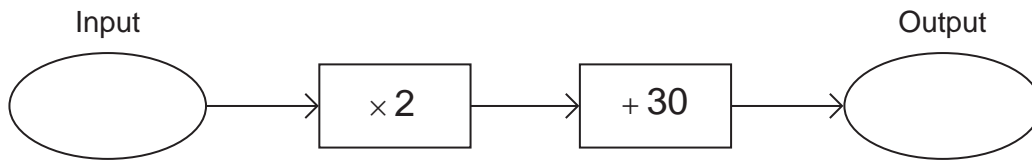
---

---

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



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  $\frac{x}{8} = 4$

[1 mark]

---

$x =$  \_\_\_\_\_

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

[2 marks]

---

---

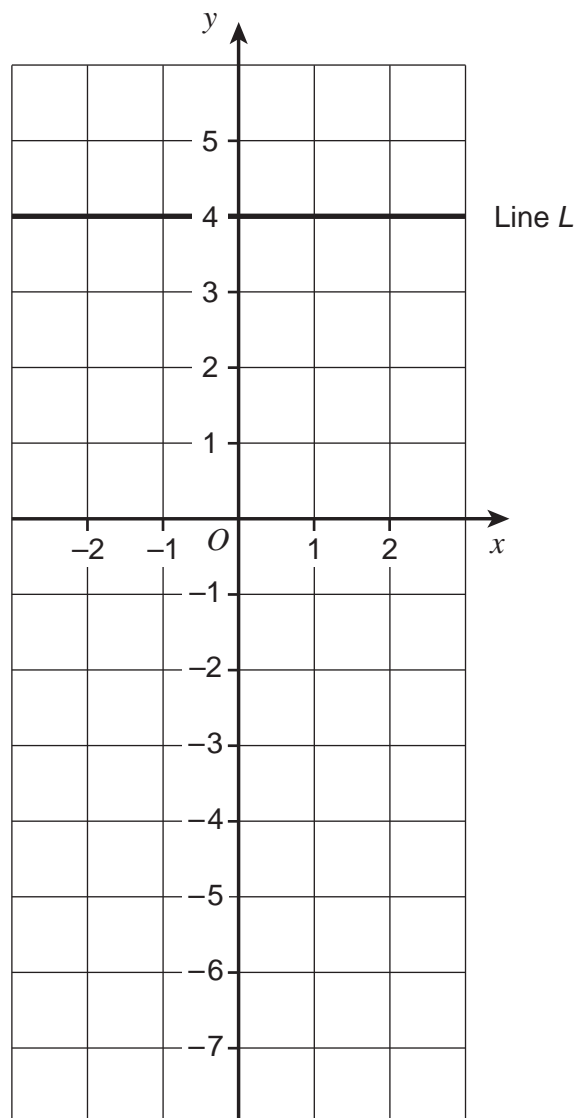
---

$y =$  \_\_\_\_\_

Turn over for the next question



13 (a) On the grid is line  $L$ .



Circle the equation of line  $L$ .

[1 mark]

$$y = x + 4$$

$$y = 4$$

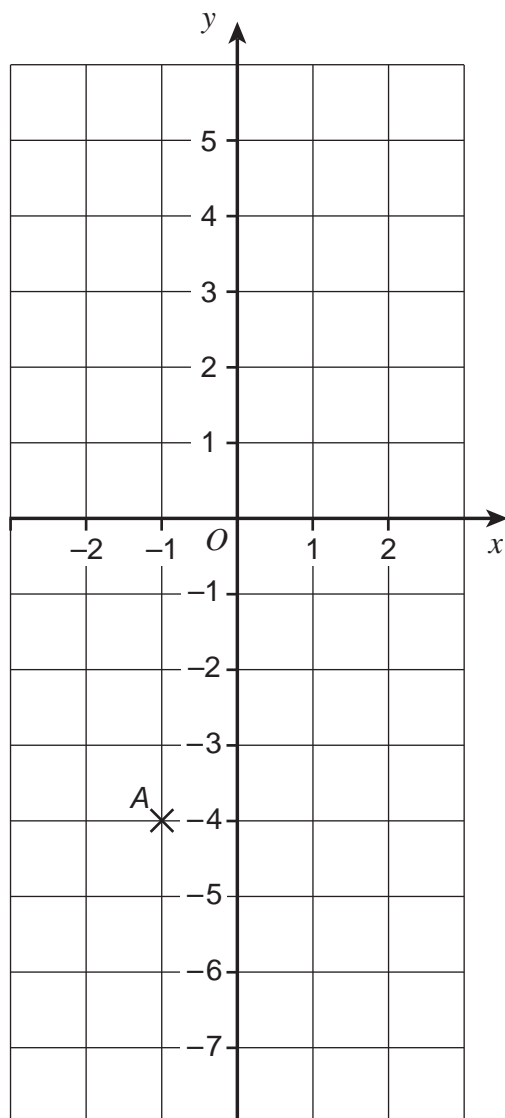
$$x = 4$$

$$x + y = 4$$



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  $B(2, \underline{\hspace{2cm}})$

$C(\underline{\hspace{2cm}}, -1)$



**14 (a)** Work out  $0.7 \times 0.3$  **[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]**

$$\frac{13}{20}$$

0.7

55%

Smallest \_\_\_\_\_

\_\_\_\_\_

Largest \_\_\_\_\_



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

No charge for mileage

Normal price £66 each day

**Offer** Now  $\frac{1}{3}$  off**Company B**

No daily charge

Normal price 75p each mile

**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]**


---



---



---



---



---



---



---



---



---



---



---



---



---



---



---



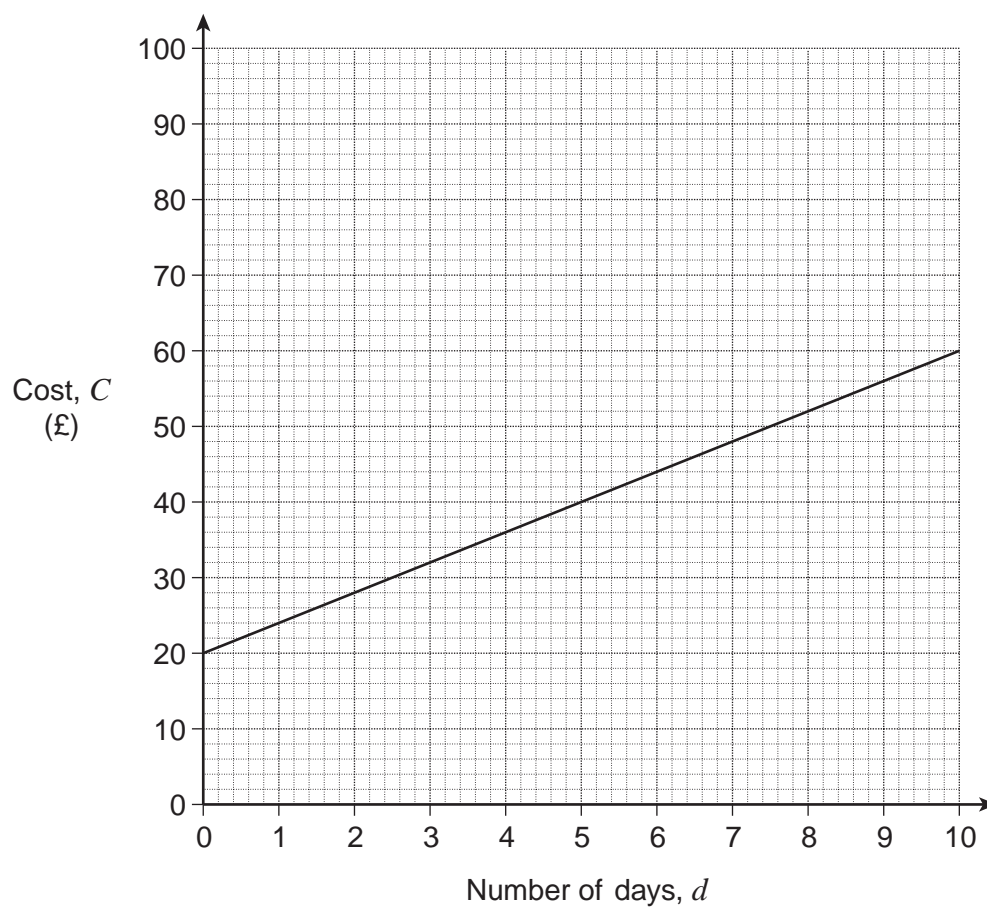
---

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

$$\text{cranberry} : \text{orange} = 1 : 3$$

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



**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**



2 2

**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**



2 3

**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**

**Copyright Information**

For confidentiality purposes, from the November 2015 examination series, acknowledgements of third party copyright material will be published in a separate booklet rather than including them on the examination paper or support materials. This booklet is published after each examination series and is available for free download from [www.aqa.org.uk](http://www.aqa.org.uk) after the live examination series.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team, AQA, Stag Hill House, Guildford, GU2 7XJ.

Copyright © 2016 AQA and its licensors. All rights reserved.

