



Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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# GCSE MATHEMATICS

# F

Foundation Tier Unit 2 Number and Algebra

Thursday 9 June 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 3 and 14. 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** Apples cost 30p each.  
Oranges cost 45p each.

**1 (a)** Mel buys 8 apples and 6 oranges.

How much change should she get from a £10 note?

**[3 marks]**

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Answer £ \_\_\_\_\_

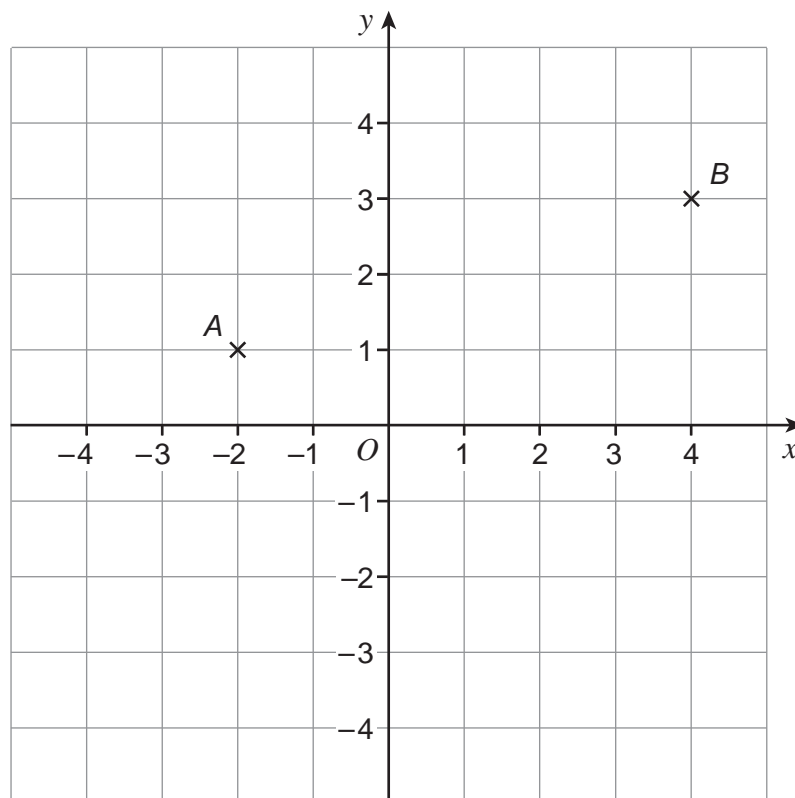
**1 (b)** Write an expression, in pence, for the cost of  $x$  apples and  $y$  oranges.

**[1 mark]**

Answer \_\_\_\_\_ pence



2



- 2 (a) Write down the coordinates of the midpoint of  $AB$ .

[1 mark]

Answer ( \_\_\_\_\_ , \_\_\_\_\_ )

- 2 (b) Plot the point  $(2, -3)$  on the grid.  
Label it  $C$ .

[1 mark]

- 2 (c)  $D$  has the same  $x$ -coordinate as  $A$ .  
The  $y$ -coordinate of  $D$  is 1 **more** than the  $y$ -coordinate of  $C$ .

Write down the coordinates of  $D$ .

[1 mark]

Answer ( \_\_\_\_\_ , \_\_\_\_\_ )



- \*3** Paul has saved £2300  
He spends £1650 of this on a holiday.  
He wants to buy a laptop for £550
- Does he have enough money left to buy the laptop?  
You **must** show your working.

[3 marks]

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- 4 (a)** Write down the **two** common factors of 21 and 56

[1 mark]

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Answer \_\_\_\_\_ and \_\_\_\_\_

- 4 (b)** Circle the number that is a prime factor of 27

[1 mark]

1                      3                      9                      27



5

**White tiles**  
80 tiles in a box

**Blue tiles**  
50 tiles in a box

Adam needs 440 tiles.  
He needs **more** white tiles than blue tiles.

How many of each box does he need?

**[3 marks]**

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Answer \_\_\_\_\_ boxes of white tiles

\_\_\_\_\_ boxes of blue tiles

**Turn over for the next question**

8

**Turn over** ►



**6 (a)** Write down the value of  $\sqrt{121}$  **[1 mark]**

Answer \_\_\_\_\_

**6 (b)** Work out  $\frac{1}{5}$  of 45 **[1 mark]**

\_\_\_\_\_

Answer \_\_\_\_\_

**6 (c)** Write down the **value** of the digit 7 in the answer to  $5.37 \times 10$  **[1 mark]**

\_\_\_\_\_

Answer \_\_\_\_\_

**6 (d)** Work out  $4.8 - 1.25$  **[1 mark]**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_



- 7 (a)** The difference between two positive numbers is 40  
The second number is twice the first number.

What are the **two** numbers?

[1 mark]

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Answer \_\_\_\_\_ and \_\_\_\_\_

- 7 (b)** Two numbers add up to 30  
The second number is 50% bigger than the first number.

What are the **two** numbers?

[2 marks]

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Answer \_\_\_\_\_ and \_\_\_\_\_

**Turn over for the next question**

7
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**Turn over ►**



8 (a) Solve  $x - 11 = 14$

[1 mark]

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$$x = \underline{\hspace{10cm}}$$

8 (b) Solve  $3y - 5 = 19$

[2 marks]

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$$y = \underline{\hspace{10cm}}$$

8 (c) Simplify  $3c + 2d + 4c$

[1 mark]

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Answer  $\underline{\hspace{10cm}}$

8 (d) Work out the value of  $7m + 2p$  when  $m = 3$  and  $p = -4$

[2 marks]

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Answer  $\underline{\hspace{10cm}}$





**9** 0.2 kg of flour and 0.25 litres of milk makes 3 pancakes.  
Rinal has 1 kg of flour and 1 litre of milk.  
How many pancakes can she make?

**[3 marks]**

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Answer \_\_\_\_\_

**Turn over for the next question**



**10 (a)** Work out  $0.2 \times 0.4$

**[1 mark]**

Answer \_\_\_\_\_

**10 (b)** Write these values in order, starting with the smallest.

$\frac{2}{5}$

35%

0.3

**[2 marks]**

Smallest \_\_\_\_\_

\_\_\_\_\_

Largest \_\_\_\_\_



**11 (a)** Work out the value of  $5^3 - 5^2$

Circle your answer.

[1 mark]

5      10      50      100

**11 (b)** Work out the value of  $2^3 \times 3^2$

Circle your answer.

[1 mark]

24      36      72      108

**11 (c)** Work out  $-6 \times -3$

[1 mark]

\_\_\_\_\_

Answer \_\_\_\_\_

**Turn over for the next question**



- 12** Two trains, *A* and *B*, travel from Derby to York.
- Both trains travel at a constant speed.
- Here is the timetable for the trains.

	Train <i>A</i>	Train <i>B</i>
Leave Derby	0900	1030
Arrive York	1100	1200

- 12 (a)** Train *A* travels at 60 mph

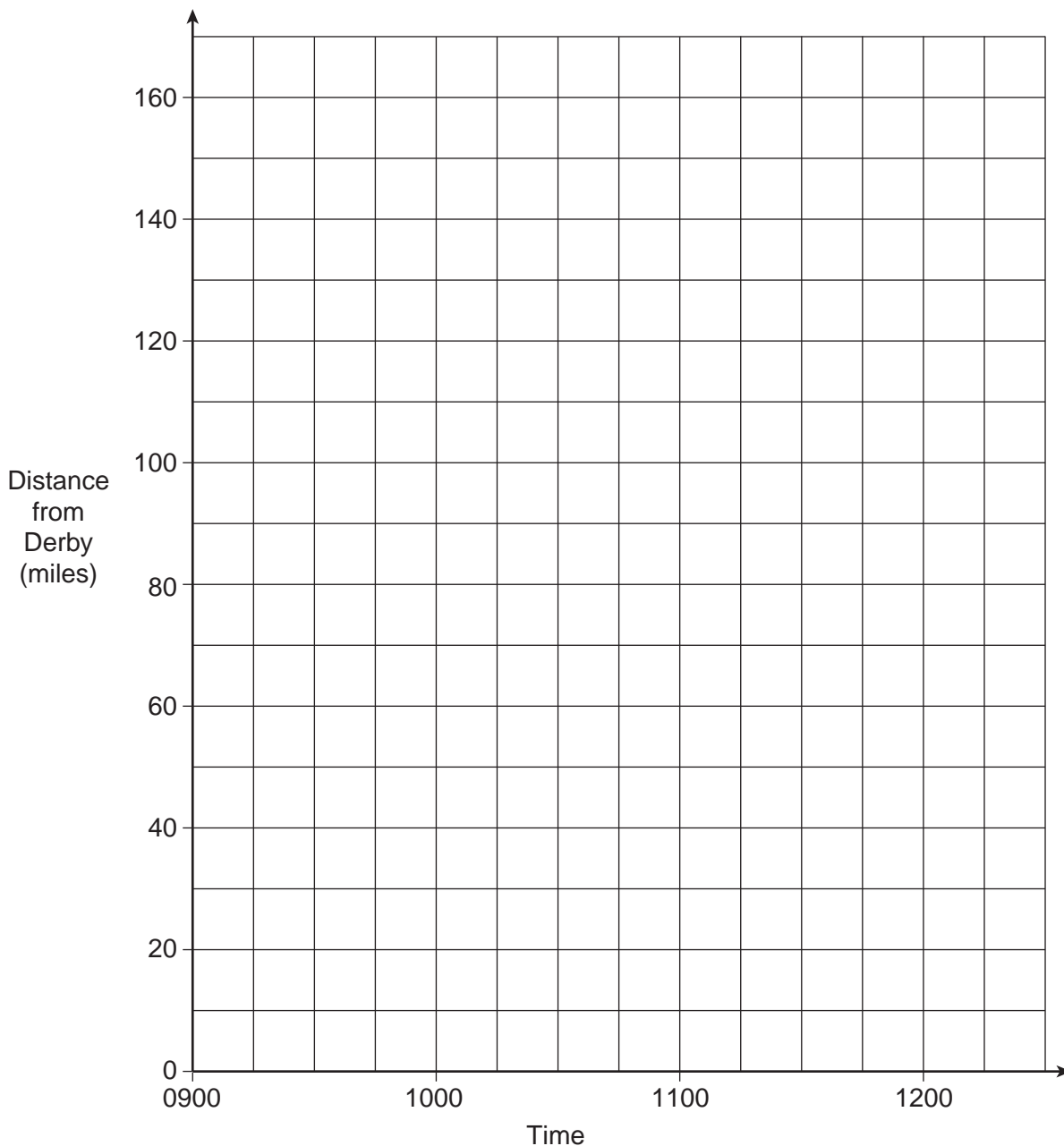
On the grid opposite, draw the distance-time graph for Train *A*.

**[1 mark]**

- 12 (b)** On the grid opposite, draw the distance-time graph for Train *B*.

**[1 mark]**





12 (c) Use your graph to work out the speed of Train B.

[1 mark]

Answer \_\_\_\_\_ mph

3

Turn over ►



**13 (a)** Here is a linear sequence.

39      27      15      3

Work out the next **two** numbers in the sequence.

**[2 marks]**

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Answer \_\_\_\_\_ and \_\_\_\_\_

**13 (b)** The term-to-term rule for a sequence is

multiply by 2

The sequence starts

$a$        $2a$       \_\_\_\_\_

The total value of the first three terms is 63

Work out the total value of the first four terms.

**[3 marks]**

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Answer \_\_\_\_\_





- 15 Olga had 20 apps on her mobile.  
She deleted 6 of them.

What percentage of her apps did she delete?

[2 marks]

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Answer \_\_\_\_\_ %

- 16 Expand and simplify  $4(3x + 7) - 5(x - 2)$

[3 marks]

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Answer \_\_\_\_\_





**17 (a)** Anil and Bev share some money.

Anil gets  $\frac{15}{80}$  of the money.

Work out the ratio Anil's money : Bev's money  
Give your answer in its simplest form.

**[2 marks]**

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Answer \_\_\_\_\_ : \_\_\_\_\_

**17 (b)** Jon and Nik share some money in the ratio 5 : 2  
Jon gets £150 more than Nik.

How much money do they share altogether?

**[3 marks]**

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Answer £ \_\_\_\_\_

10

Turn over ►



**18** A bag contains red discs, white discs and blue discs.

$\frac{1}{4}$  of the discs are red.

$\frac{1}{6}$  of the discs are white.

What is the **smallest** possible number of **blue** discs in the bag?

**[3 marks]**

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Answer \_\_\_\_\_



19 (a) Write down **all** the integers that satisfy  $-3 \leq n < 2$

[1 mark]

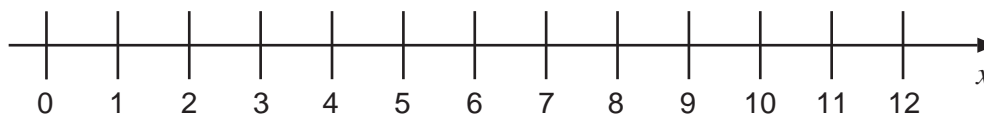
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Answer \_\_\_\_\_

19 (b) Show  $2 < x \leq 10$  on the number line.

[2 marks]



**END OF QUESTIONS**



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

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