Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
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TOTAL	

General Certificate of Secondary Education
Foundation Tier
June 2011

Mathematics 43602F

Unit 2

Tuesday 21 June 2011 9.00 am to 10.15 am

F

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.

Time allowed
- 1 hour 15 minutes

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- 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 10, and 12. 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 Here are some numbers.

13 14 15 17 31 34 35 42 43 49

1 (a) Which **two** of the numbers add up to 29?

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.....

Answer ..... and ..... *(1 mark)*

1 (b) Which number is 12 less than one of the other numbers?

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Answer ..... *(1 mark)*

1 (c) Which number is half of one of the other numbers?

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Answer ..... *(1 mark)*

1 (d) Which number is three times one of the other numbers?

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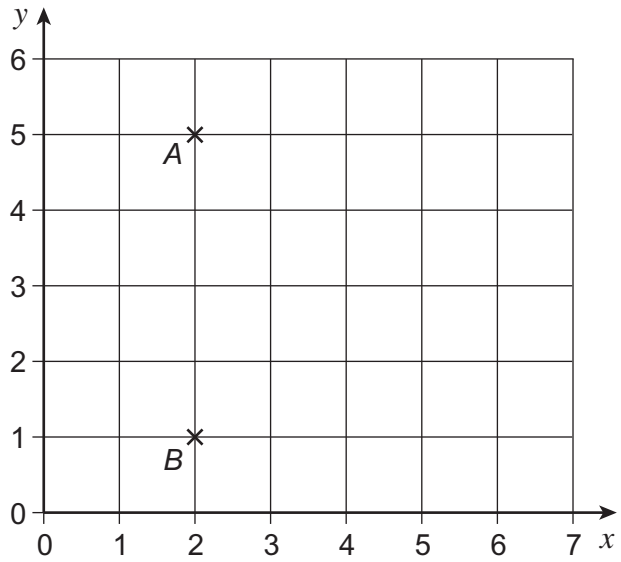
Answer ..... *(1 mark)*

1 (e) Which number is a square number?

Answer ..... *(1 mark)*

2 Points *A* and *B* are shown on the grid.



2 (a) Write down the coordinates of *A*.

Answer (..... , ...) *(1 mark)*

2 (b) Plot point *C* (6, 1) on the grid.

(1 mark)

2 (c) *ABCD* is a square.

Write down the coordinates of *D*.

Answer (..... , ...) *(1 mark)*

2 (d) Write down the coordinates of the centre of the square.

Answer (..... , ...) *(1 mark)*

3 Hannah has a box of chocolates.
She gives half of the chocolates to Alex.
Alex eats five of them and has nine left.

How many chocolates are in the box at the start?

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.....

.....

Answer ..... *(2 marks)*

11

Turn over ▶

4 Here are three numbers.

20 21 25

Complete these three statements.
The first one is done for you.

20 is the odd one out because it is the only even number.

21 is the odd one out because .....

.....

25 is the odd one out because .....

.....

(2 marks)

5 Three different whole numbers add up to 31.

The first number is a multiple of 3.
The second number is a multiple of 4.
The third number is a multiple of 5.

What could the numbers be?

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Answer First number .....

Second number .....

Third number ..... *(3 marks)*

6 Megan has a part-time job.
She earns £8 an hour.
She wants to buy a concert ticket costing £40.

How many hours does she need to work to earn enough to buy the ticket?

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.....

Answer ..... hours *(2 marks)*

7 An estate agent advertises four houses.

House A	House B	House C	House D
£132 500	£131 950	£132 400	£131 750

7 (a) Which house is the cheapest?

Answer ..... *(1 mark)*

7 (b) Which house is the most expensive?

Answer ..... *(1 mark)*

7 (c) What is the difference in price between the cheapest and the most expensive house?

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.....

.....

Answer £ ..... *(2 marks)*

7 (d) Jack buys House C.
He pays a 10% deposit.

How much is 10% of £132 400?

.....

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Answer £ ..... *(1 mark)*

12

8 (a) Write down $\sqrt{121}$

Answer ..... *(1 mark)*

8 (b) Work out $\frac{3}{5}$ of 45

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Answer ..... *(2 marks)*

8 (c) Work out 8% of 150

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Answer ..... *(2 marks)*

9 (a) Show clearly that the value of $17 - 5 \div 2 + 4$ is $18\frac{1}{2}$

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(1 mark)

9 (b) Use **one** pair of brackets to make this statement correct.

$$17 \quad - \quad 5 \quad \div \quad 2 \quad + \quad 4 \quad = \quad 10$$

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(1 mark)

9 (c) Use **two** pairs of brackets to make this statement correct.

$$17 \quad - \quad 5 \quad \div \quad 2 \quad + \quad 1 \quad \times \quad 4 \quad = \quad 16$$

.....

(1 mark)

***10** A school shop can buy pens at £2.40 for a pack of 10.
The shop sells pens at 50% profit.
The school wants to raise a total of £72 from the sale of pens.

How many packs of pens should the shop buy?

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Answer ..... *(4 marks)*

11 (a) Here are the first two terms of a sequence.

2 8 …….. ……..

The term-to-term rule of the sequence is | Multiply by 3 and add 2 |

Work out the next **two** terms of the sequence.

.....

.....

Answer..... and ..... *(2 marks)*

11 (b) The term-to-term rule of a different sequence is | Multiply by 2 and add 4 |

The third term of this sequence is 6.

…….. …….. 6 ……..

Work out the first term of this sequence.

.....

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Answer ..... *(4 marks)*

18

***12**

Electricity Bill Charges	
First 200 units	24p per unit
Remaining units	15p per unit

Mrs Spark checks her electricity bill.
Here are her meter readings.

New reading: 5647 units
Old reading: 5345 units

Work out the total cost for the number of units used.

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Answer £ ..... *(5 marks)*

13 The number 57 can be written as the product of two prime numbers.

$57 = 3 \times 19$

Find **three** other numbers between 50 and 60 that can be written in this way.
You **must** show the products with each answer.

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Answer .....

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..... *(3 marks)*

14 Use approximations to estimate the value of $\dfrac{795.4}{2.1^2 \times 9.8}$

You **must** show your working.

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Answer ..... *(3 marks)*

15 A bag contains only red, blue and yellow counters.
There are three times as many blue counters as yellow counters.
There are 43 counters in the bag.

Some red counters are added to the bag.
There are now 50 counters in the bag.
The number of red counters has doubled.

How many yellow counters are in the bag?

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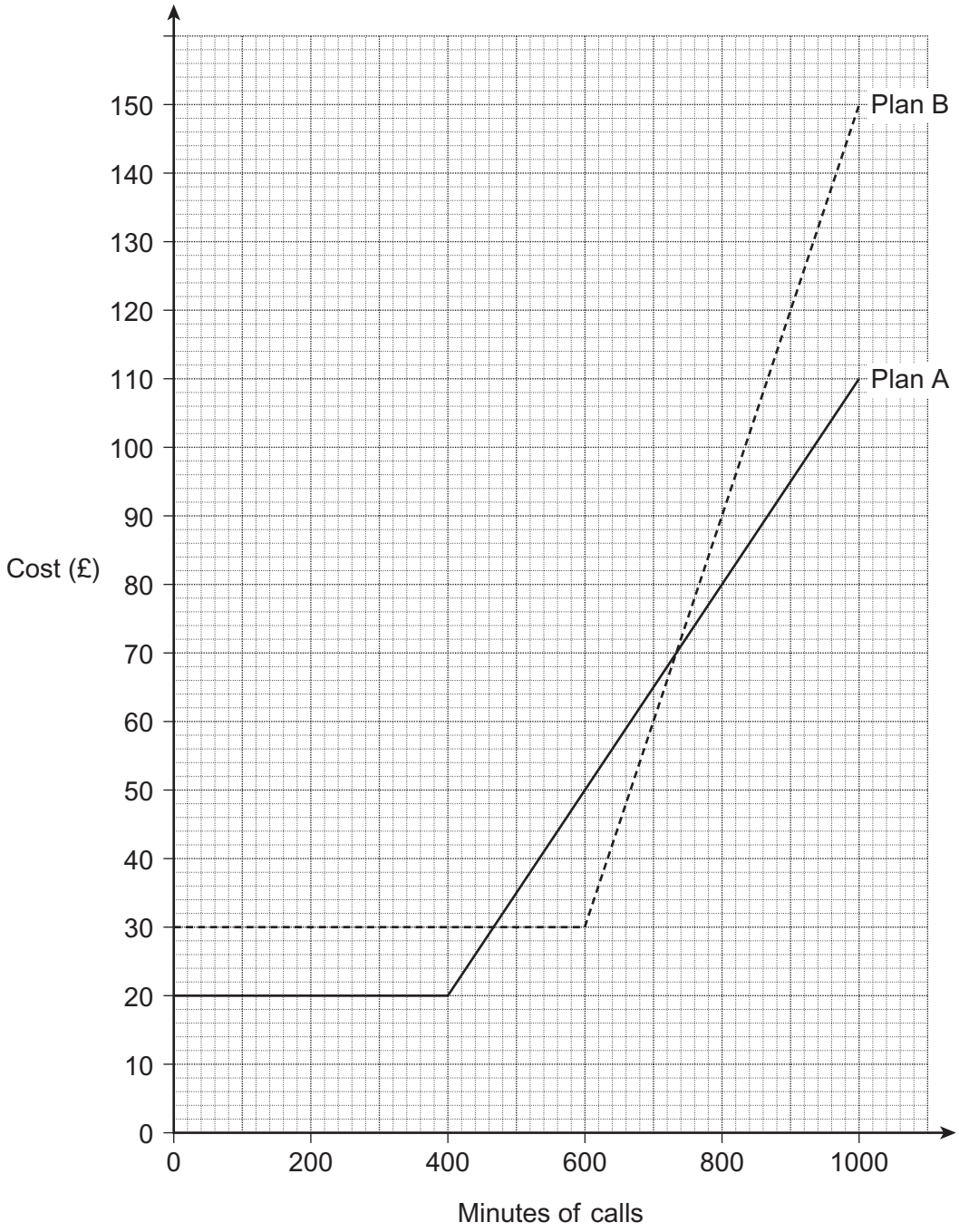
Answer ..... *(3 marks)*

14

16 Plan A and Plan B are two monthly mobile phone plans.
Here are the details of Plan A.

Monthly charge	£20
400 minutes of calls	Free
Each extra minute	15p

The graph shows the costs for both plans.



16 (a) Ben usually makes about 800 minutes of calls a month.

Which plan should he choose?
Give a reason for his choice.

.....

.....

(2 marks)

16 (b) Sarah chooses Plan B.

How much does she pay for each extra minute of calls?

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Answer ..... *(3 marks)*

17 (a) Solve $5x + 3 = 3(x + 2)$

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Answer x = ... *(3 marks)*

17 (b) $2(x + 16) + 4(x - 5)$ simplifies to $a(x + b)$

Work out the values of a and b.

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Answer a = ... , b = ... *(3 marks)*

END OF QUESTIONS

11

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED