Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
2 – 3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
TOTAL	

In the style of

AQA

General Certificate of Secondary Education
Foundation Tier

Mathematics 43602F

Past Paper Type Questions by Topic

Algebra F

For this paper you must have: • a calculator • mathematical instruments.	

Time allowed
- 1 hour

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.
- The quality of your written communication is specifically assessed in some questions. 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 booklet.

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

By Peter Bland

1 (a) Solve $4(y + 5) = 28$

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.....

.....

Answer y = ...

(3 marks)

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

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Answer .....

(1 mark)

2 You are given that 1 tonne = 1000 kilograms and 1 kilogram = 1000 grams

A skip contains half a tonne of magazines when full.
Each magazine weighs about 200 grams.

Approximately how many magazines would fill the skip?

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Answer .....

(4 marks)

3 (a) Work out the value of $3a + 4b$ when $a = 5$ and $b = \frac{1}{2}$

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

3 (b) Solve $5x + 7 = x + 9$

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4 (a) Simplify $y^4 \times y^4$ Answer x =..... *(3 marks)*

.....

Answer .....

(1 mark)

4 (b) Simplify $y^4 \div y^4$

.....

Answer .....

(1 mark)

5 (a) Simplify $3x + 4x$

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

5 (b) Simplify fully $\frac{12y}{6}$

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

5 (c) $a = 5$ and $b = 4$

Work out the value $2a + 3b$

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

5 (d) Solve $7x + 1 = 36$

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.....

Answer $x =$ ..... *(2 marks)*

6 (a) Simplify 4x + 3x + 5x

.....

Answer .....

(1 mark)

6 (b) Work out the value of $7a + 2b$ when $a = 4$ and $b = 3$

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Answer .....

(2 marks)

7 Write 24 as the product of prime factors.

Give your answer in index form.

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Answer .....

(3 marks)

8 (a) Solve $7y > 2y + 20$

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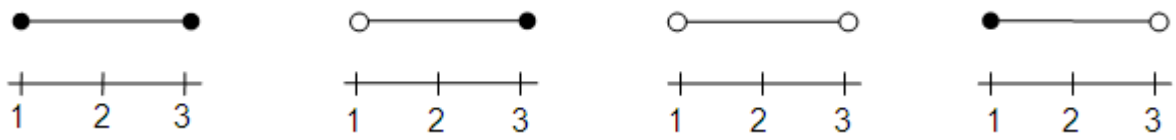
Answer .....

(2 marks)

8 (b) Circle the diagram that represents $1 \leq x < 3$



(*1 mark*)

9 A bag contains blue, red and yellow balls.

The number of blue balls is x

The number of red balls is $x + 3$

The number of yellow balls is $2x$

9 (a) Complete these sentences.

Choose from this list.

double two more than three more than three times

9 (a) (i) The number of red balls is ..... the number of blue balls.

(1 mark)

9 (a) (ii) The number of yellow balls is ..... the number of blue balls.

(1 mark)

9 (b) The total number of balls in the bag is 67.

Work out the number of red balls in the bag.

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Answer .....

(4 marks)

10 Work out the value of $5x + 3y$ when $x = -2$ and $y = 6$

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.....

Answer .....

(2 marks)

11 (a) Solve $a + 3 = 7$

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Answer a = ... *(1 mark)*

11 (b) Solve $2a + 5 = 1$

.....

.....

Answer a = ... *(2 marks)*

12 There are 320 people on a train.

20% are children.

One-half are men.

The rest are women.

How many women are on the train?

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Answer .....

(4 marks)

13 Here is a formula.

$$N = \frac{1}{4}xy$$

$x + y$ is less than 20.

Find **two** possible pairs of values of x and y when $N = 15$

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Answer x = ... x =.....

Answer y = ... y =.....

(3 marks)

14 (a) The numbers in this sequence go down by the same amount each time.

74 …… 58 50 42 ……

What are the **two** missing numbers?

.....

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

14 (b) The numbers in this different sequence go down by the same amount each time.

26 …… …… …… 6

What are the **three** missing numbers?

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

15 (a) Solve $3x = 12$

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Answer x = ... *(1 mark)*

15 (b) Solve $\frac{a}{5} = -6$

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Answer a = ... *(1 mark)*

15 (c) Solve $5b + 4 = 19$

.....

.....

Answer b = ... *(2 marks)*

15 (d) Factorise fully $4c - 20$

.....

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

16 (a) Work out the value of $2x + 3y$ when $x = 5$ and $y = 8$

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

16 (b) Expand and simplify $3(2a - 4) + 5(a + 2)$

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

17 Peter thinks of a number. Two-thirds of the number is 60.

What is $1\frac{1}{2}$ times the number?

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

18 You are given that $P = x^2 - y^2$

18 (a) Show that P is a prime number when $x = 4$ and $y = 3$

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(2 marks)

18 (b) Work out **two** other pairs of values for x and y so that P is a prime number.

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Answer x = ... and y = ...

x = ... and y = ... *(3 marks)*

*19 (a) (i) Simplify the expression $y \times 5$

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

19 (a) (ii) Simplify fully $2x + 5y + 3x - 2y$

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

19 (b) z represents an even number.

Explain why $(z + 1)(z - 1)$ is always odd.

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(2 marks)

20 (a) Circle **all** the prime numbers in this list.

3 6 7 9 10 13 15 17

(2 marks)

20 (b) x is a positive whole number.

$6x - 1$ is **not** a prime number. Work out a possible value for x.

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

There are no questions printed on this page

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