AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

GCSE
METHODS IN MATHEMATICS (LINKED PAIR)

F

Foundation Tier Unit 1 Algebra and Probability (Section A)

Wednesday 2 November 2016 Morning Time allowed: 45 minutes

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

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. Cross through any work you do not want to be marked.
- This paper is divided into two sections: Section A and Section B.
- After the 45 minutes allowed for Section A, you must put your calculator on the floor under your seat. You will then be given Section B.
- When you have answered Section B you may work again on Section A but you must **not** use a calculator. It must remain on the floor under your seat.
- At the end of the examination tag Section A and Section B together with Section A on top.

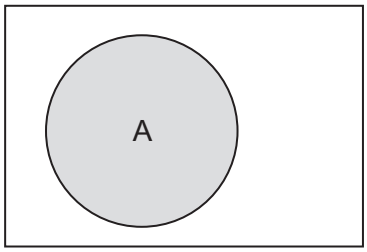
Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 40
- The quality of your written communication is specifically assessed in Questions 6, 8 and 9 These questions are indicated with an asterisk (*).
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- You are expected to use a calculator where appropriate.

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

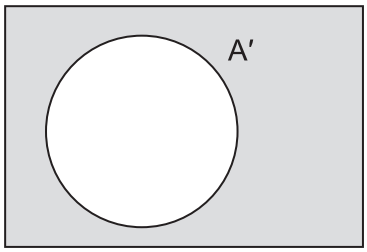
Formulae Sheet: Foundation Tier

Set notation

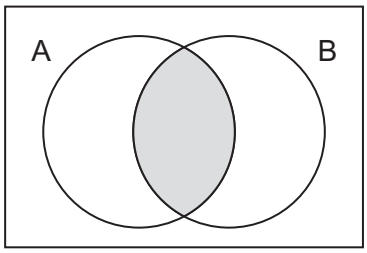
A



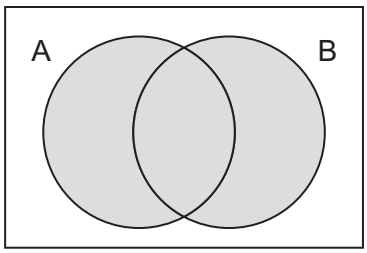
A′



$A \cap B$



$A \cup B$



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

1 (a) Circle the number one hundred and ten thousand.

[1 mark]

1100 | 110 000 | 101 000 | 10 010 000

1 (b) Circle the fraction with the same value as 25%

[1 mark]

$\frac{1}{4}$ | $\frac{2}{5}$ | $\frac{3}{75}$ | $\frac{4}{100}$

1 (c) Circle the decimal with the same value as $\frac{4}{5}$

[1 mark]

0.08 | 0.45 | 0.8 | 1.25

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

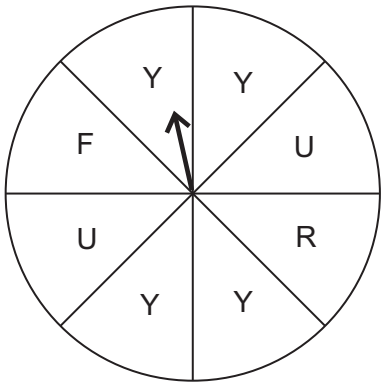
[1 mark]

0.05 | 0.5 | 0.20 | 0.02

Turn over for the next question

4

2 A fair spinner has eight equal sections.



The arrow is spun.

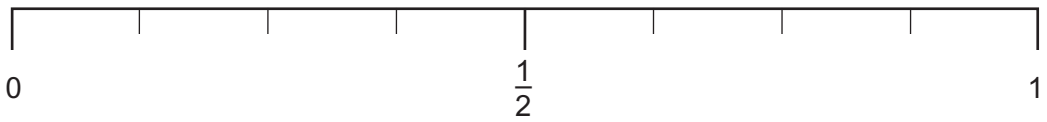
2 (a) Match each event to the chance of it happening.
One has been done for you.

[3 marks]

The arrow lands on F	Impossible
The arrow lands on Y	Unlikely
The arrow lands on A	Evens
The arrow lands on a letter in the word FURY	Likely
	Certain

2 (b) Put a cross on the scale to show the probability of the arrow landing on R.

[1 mark]



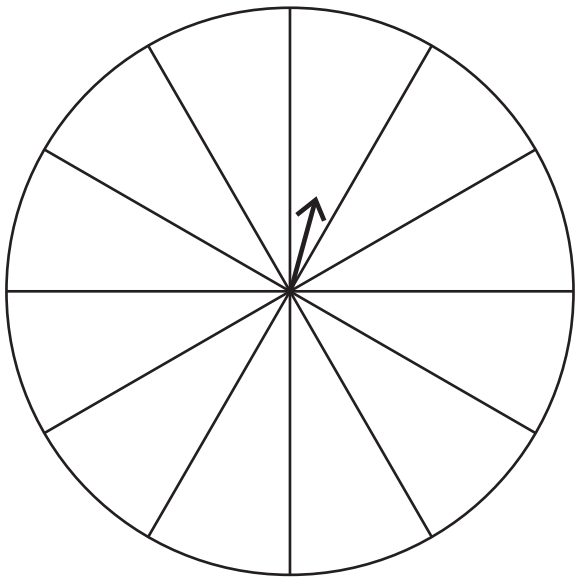
2 (c) A different fair spinner has 12 equal sections.

Label each section A, B or C so that when the arrow is spun,

the probability it lands on A is $\frac{1}{3}$

it is three times more likely to land on B than on C.

[2 marks]



6

3 Put numbers into the table so that,

the sum of the three numbers in each row, column and diagonal is the same.

[2 marks]

3	10	
	6	
7		9

4 (a) Circle the word that describes $4x + 5$

[1 mark]

equation expression formula term

4 (b) Solve $4x + 5 = 19$

[2 marks]

$x =$ _____

5 Work out $\dfrac{3.45}{9.7 + 15.3}$

Give your answer as a decimal.

[1 mark]

Answer _____

6

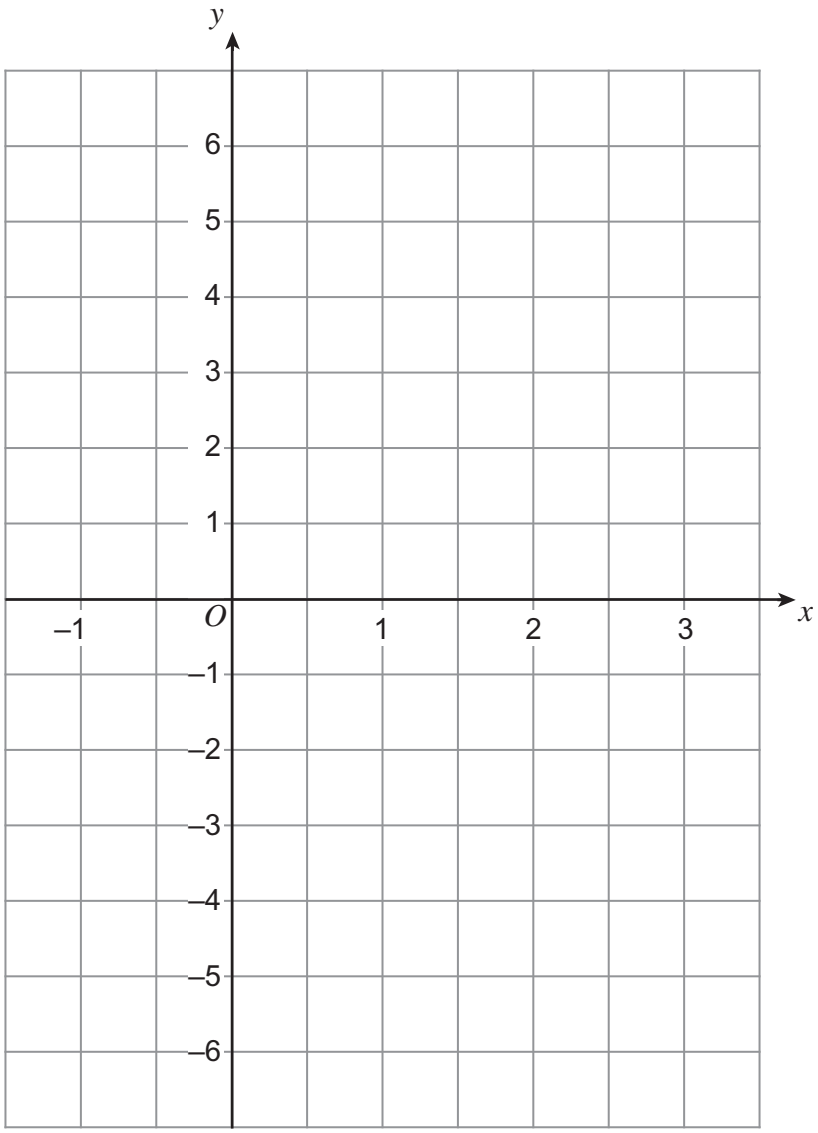
6 (a) Complete the table of values for $y = 2x - 3$

[1 mark]

x	–1	1	3
y		–1	3

6 (b) Draw the graph of $y = 2x - 3$ for values of x from –1 to 3

[2 marks]



***6 (c)** Here is a table of values for a straight line graph.

x	–1	0	1	2	3
y	–4	0	4	8	12

Work out the equation of the line.

[2 marks]

Answer _____

Turn over for the next question

5

7 (a) Work out $\sqrt{484}$

[1 mark]

Answer _____

7 (b) How many square numbers are there between 500 and 1000?
You **must** show your working.

[2 marks]

_____

_____

_____

_____

_____

_____

Answer _____

***8** A bottle contains 300 beads.
75 of the beads are red.
All the other beads are blue.

The number of red beads is **increased** by $\frac{2}{3}$

The number of blue beads is **decreased** by 20%

Has the total number of beads in the bottle increased?
You **must** show your working.

[4 marks]

7

9 (a) $R = 8k - 2m$

Work out R when $k = 4$ and $m = 7$

[2 marks]

Answer _____

***9 (b)** $T = 5n + 3p$

n is an integer.
p is 1 more than n.

Show that T is always an odd number.

[3 marks]

10 2016 is divided into two parts in the ratio 1 : 8

Work out the larger part.

[2 marks]

Answer _____

11 Rearrange the formula $C = 2d + 5$ to make d the subject.

[2 marks]

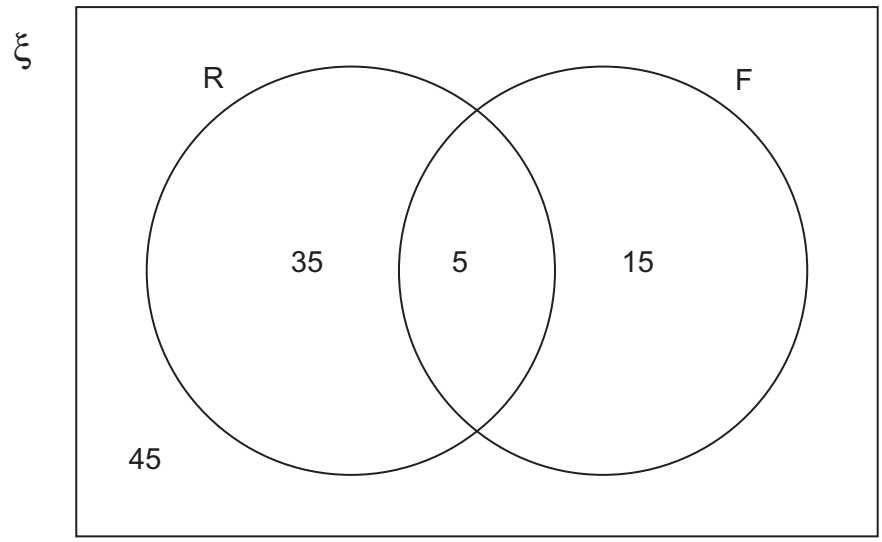
Answer _____

Turn over for the next question

9

12 The Venn diagram shows information about the 100 passengers on a flight.

R is the set of passengers with a return ticket.
F is the set of passengers in first class.



One passenger is chosen at random.

12 (a) Circle the value of P(R′)

[1 mark]

0.15 0.45 0.6 0.65

12 (b) Show that $P(R \cup F) < P(R) + P(F)$

[2 marks]

END OF SECTION A

3

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