

Edexcel GCSE

Mathematics (Linear) – 1MA0

PROBABILITY

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil

ANSWERS

**Instructions**

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

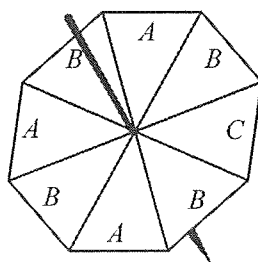
Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1.



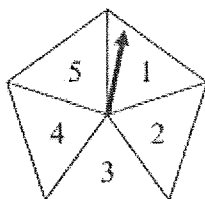
The diagram shows a fair spinner in the shape of a regular octagon.
The spinner can land on A or B or C.
Marc spins the spinner.

Write down the probability that the spinner will land on A.

$$\frac{3}{8}$$

.....
(Total 2 marks)

2. Ishah spins a fair 5-sided spinner.
She then throws a fair coin.



- (a) List all the possible outcomes she could get.
The first one has been done for you.

(1, head) .. (2, head) .. (3, head) .. (4, head) .. (5, head)
(1, tails) .. (2, tails) .. (3, tails) .. (4, tails) .. (5, tails)

.....
(2)

Ishah spins the spinner once and throws the coin once.

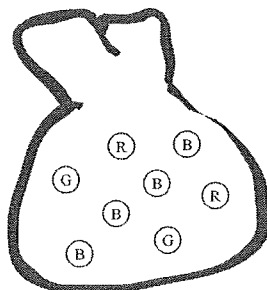
- (b) Work out the probability that she will get a 1 and a head.

$$\frac{1}{10}$$

(1)
(Total 3 marks)

3. There are eight marbles in a bag.

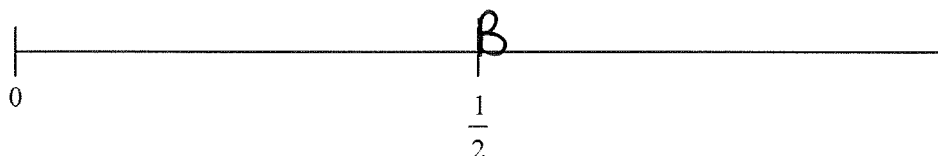
Four marbles are blue (B),
two marbles are red (R)
and two marbles are green (G).



Steve takes a marble at random from the bag.

- (a) On the probability scale, mark with the letter B, the probability that Steve will take a blue marble.

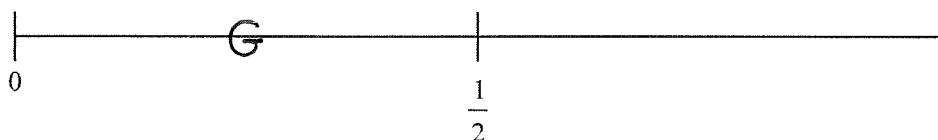
$$\frac{4}{8} = \frac{1}{2}$$



(1)

- (b) On the probability scale, mark with the letter G, the probability that Steve will take a green marble.

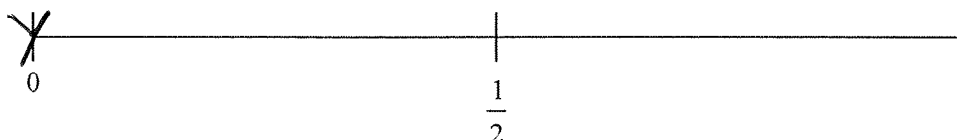
$$\frac{2}{8} = \frac{1}{4}$$



(1)

- (c) On the probability scale, mark with the letter Y, the probability that Steve will take a yellow marble.

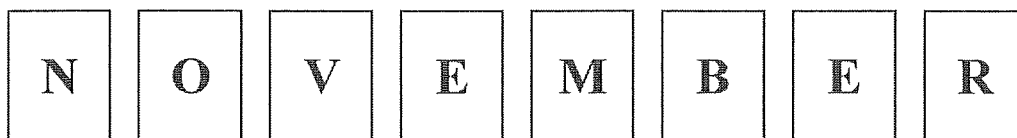
$$\frac{0}{8} = 0$$



(1)

(Total 3 marks)

4. Lucy uses some letter cards to spell the word “NOVEMBER”.



Lucy takes one of these cards at random.

Write down the probability that Lucy takes a card with a letter E.

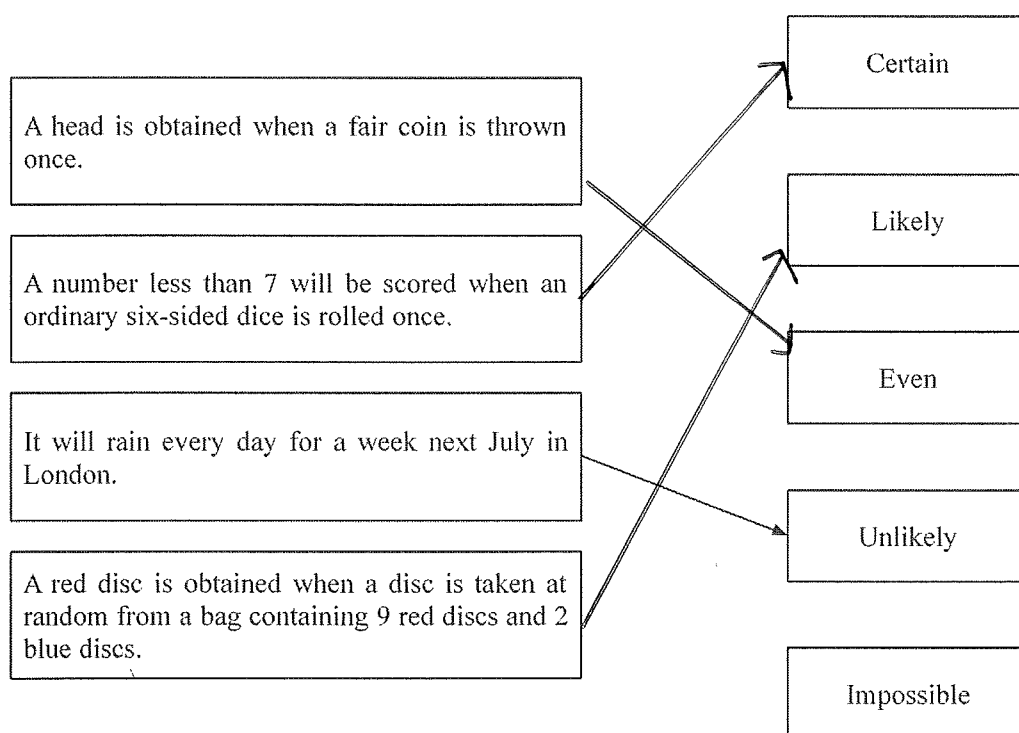
$$\frac{2}{8} = \frac{1}{4}$$

.....
(Total 2 marks)

5. Here are some statements.

Draw an arrow from each statement to the word which best describes its likelihood.

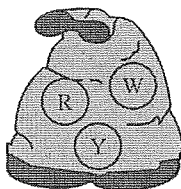
One has been done for you.



(Total 3 marks)

6. There are three beads in a bag.
One bead is red, one bead is white and one bead is yellow.

Sarah takes, at random, a bead from the bag.
She looks at its colour and then puts the bead back in the bag.



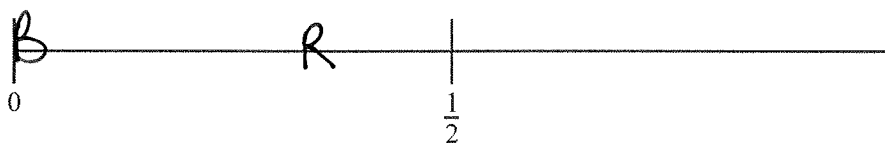
On the probability line,

- (i) mark with the letter R the probability that Sarah takes a red bead.

$$\frac{1}{3}$$

- (ii) mark with the letter B the probability that Sarah takes a black bead.

$$\frac{0}{3} = 0$$



(2)

(Total 2 marks)

7. A bag contains some beads which are red or green or blue or yellow.

The table shows the number of beads of each colour.

Colour	Red	Green	Blue	Yellow
Number of beads	3	2	5	2

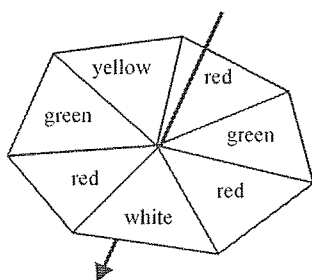
$$3+2+5+2=12$$

Samire takes a bead at random from the bag.
Write down the probability that she takes a blue bead.

$$\frac{5}{12}$$

(Total 2 marks)

8.



Here is a fair 7-sided spinner.
The spinner is to be spun once.
The spinner will land on one of the colours.

(a) On which colour is the spinner most likely to land?

..... Red

(1)

(b) Write down the probability that the spinner will land on green.

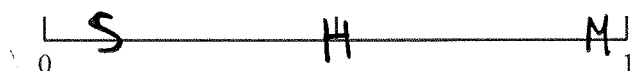
..... $\frac{2}{7}$

(1)

(Total 2 marks)

9. On the probability scale below, mark

- (i) with the letter S, the probability that it will snow in London in June,
- (ii) with the letter H, the probability that when a fair coin is thrown once it comes down heads,
- (iii) with the letter M, the probability that it will rain in Manchester next year.



(Total 3 marks)

10. Joshua rolls an ordinary dice once.
It has faces marked 1, 2, 3, 4, 5 and 6.

(a) Write down the probability that he gets

(i) a 6,

$$\frac{1}{6}$$

(ii) an odd number,

①, 2, ③, 4, ⑤, 6

$$\frac{3}{6} = \frac{1}{2}$$

(iii) a number less than 3,

1, 2

$$\frac{2}{6} = \frac{1}{3}$$

(iv) an 8.

$$0$$

(4)

Ken rolls a different dice 60 times. This dice also has six faces.

The table gives information about Ken's scores.

Score on dice	Frequency
1	9
2	11
3	20
4	2
5	8
6	10

(b) Explain what you think is different about Ken's dice.

Not a fair dice, it seems biased.

You would expect around 10 for each number not 20 for 3 or 2 for 4

(1)

(Total 5 marks)

11. Emily has a bag of 20 fruit flavour sweets.

7 of the sweets are strawberry flavour,
11 are lime flavour,
2 are lemon flavour.

Emily takes at random a sweet from the bag.

Write down the probability that Emily

(a) takes a strawberry flavour sweet,

$$\frac{7}{20} \dots\dots\dots (1)$$

(b) does not take a lime flavour sweet,

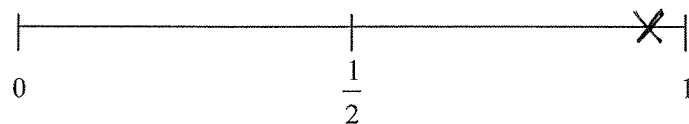
$$\frac{9}{20} \dots\dots\dots (1)$$

(c) takes an orange flavour sweet.

$$\frac{0}{20} \dots\dots\dots (1)$$

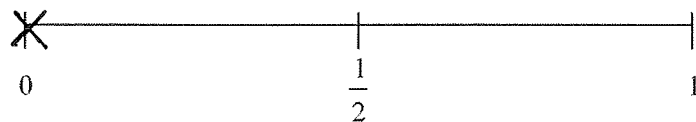
(Total 3 marks)

12. (a) On the probability scale below, mark with a cross (×) the probability that it will rain on at least one day in London in 2008.



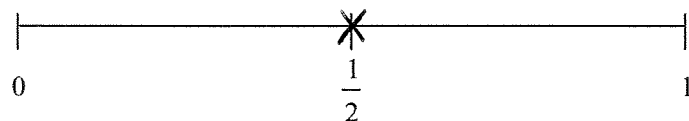
(1)

(b) On the probability scale below, mark with a cross (×) the probability that you will get a 10 when you roll an ordinary 6-sided dice.



(1)

(c) On the probability scale below, mark with a cross (×) the probability that you will get a head when you throw a coin.



(1)

(Total 3 marks)