

Write your name here									
Surname	Other names								
Centre Number	Candidate Number								
<b>Pearson Edexcel</b> <b>Level 1/Level 2 GCSE (9–1)</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> <td style="width: 25%; height: 20px;"></td> </tr> </table>								
<h1 style="margin: 0;">Mathematics</h1> <h2 style="margin: 0; color: #0070C0;">Buttons and counters</h2>									
<b>Foundation Tier</b>	Paper Reference <b>1MA1</b>								
<b>You must have:</b> Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.	Total Marks <div style="border: 1px solid black; width: 50px; height: 30px; margin: 0 auto;"></div>								

### 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.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.142 unless the question instructs otherwise.

### Information

- The total mark for this paper is **26**. There are **8** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

### 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.

**1MA1 Foundation themed papers: Buttons and counters**

- 1** There are 49 counters in a bag.  
20 of the counters are red.  
The rest of the counters are blue.  
One of the counters is taken at random.  
Find the probability that the counter is blue.

.....  
**(Total for Question 1 is 2 marks)**

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- 2** Bill has 400 counters in a bag.  
He gives  
    35 of the counters to Sameena  
    50 of the counters to Henry  
    75 of the counters to Lucas  
What fraction of the 400 counters is left in Bill's bag?  
Give your fraction in its simplest form.

.....  
**(Total for Question 2 is 3 marks)**

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**1MA1 Foundation themed papers: Buttons and counters**

3 There are four types of counter in a bag.

The table shows the number of each type of counter in the bag.

<b>Type of counter</b>	red circle	green circle	red square	green square
<b>Number of counters</b>	16	26	11	7

There are more green counters than red counters.  
How many more?

.....  
**(Total for Question 3 is 2 marks)**

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4 Marla buys some bags of buttons.

There are 19 buttons or 20 buttons or 21 buttons or 22 buttons in each bag.

The table gives some information about the number of buttons in each bag.

<b>Number of buttons</b>	<b>Frequency</b>
19	.....
20	7
21	3
22	1

The total number of buttons is 320.

Complete the table.

**(Total for Question 4 is 3 marks)**

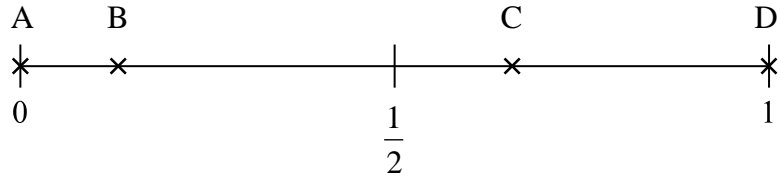
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**1MA1 Foundation themed papers: Buttons and counters**



**5**

Here is a probability scale.  
It shows the probability of each of the events A, B, C and D.



(a) Write down the letter of the event that is certain.

.....  
(1)

(b) Write down the letter of the event that is unlikely.

.....  
(1)

There are 12 counters in a bag.

- 3 of the counters are red.
- 1 of the counters is blue.
- 2 of the counters are yellow.
- The rest of the counters are green.

Caitlin takes at random a counter from the bag.

(c) Show that the probability that this counter is yellow or green is  $\frac{2}{3}$

(3)

**(Total for Question 5 is 5 marks)**

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**1MA1 Foundation themed papers: Buttons and counters**

- 6 In a bag there are only red counters, blue counters, green counters and yellow counters. A counter is taken at random from the bag.

The table shows the probabilities of getting a red counter or a yellow counter.

<b>Colour</b>	red	blue	green	yellow
<b>Probability</b>	0.4	.....	.....	0.25

the number of blue counters : the number of green counters = 3 : 4

Complete the table.

**(Total for Question 6 is 4 marks)**

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- 7 There are only red buttons, yellow buttons and orange buttons in a jar. The number of red buttons, the number of yellow buttons and the number of orange buttons are in the ratio 7 : 4 : 9

Work out what percentage of the buttons in the jar are orange.

..... %

**(Total for Question 7 is 2 marks)**

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**1MA1 Foundation themed papers: Buttons and counters**

**8** There are some counters in a bag.  
The counters are red or white or blue or yellow.

Bob is going to take at random a counter from the bag.

The table shows each of the probabilities that the counter will be blue or will be yellow.

<b>Colour</b>	red	white	blue	yellow
<b>Probability</b>			0.45	0.25

There are 18 blue counters in the bag.

The probability that the counter Bob takes will be red is twice the probability that the counter will be white.

(a) Work out the number of red counters in the bag.

.....  
(4)

A marble is going to be taken at random from a box of marbles.

The probability that the marble will be silver is 0.5

There must be an even number of marbles in the box.

(b) Explain why.

.....  
.....  
(1)

**(Total for Question 8 is 5 marks)**

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**TOTAL MARKS FOR PAPER: 26**