GCSE Grade 5

Maths Booklet 5

Paper 3H
Calculator

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1 Henry is thinking of having a water meter.

These are the two ways he can pay for the water he uses.

Water Meter

A charge of £28.20 per year

plus

91.22p for every cubic metre of water used

1 cubic metre = 1000 litres

No Water Meter

A charge of £107 per year

Henry uses an average of 180 litres of water each day.

Use this information to determine whether or not Henry should have a water meter.

(Total for Question 1 is 5 marks)

2 Liz buys packets of coloured buttons.

There are 8 red buttons in each packet of red buttons.
There are 6 silver buttons in each packet of silver buttons.
There are 5 gold buttons in each packet of gold buttons.

Liz buys equal numbers of red buttons, silver buttons and gold buttons.

How many packets of each colour of buttons did Liz buy?

....packets of red buttons

....packets of silver buttons
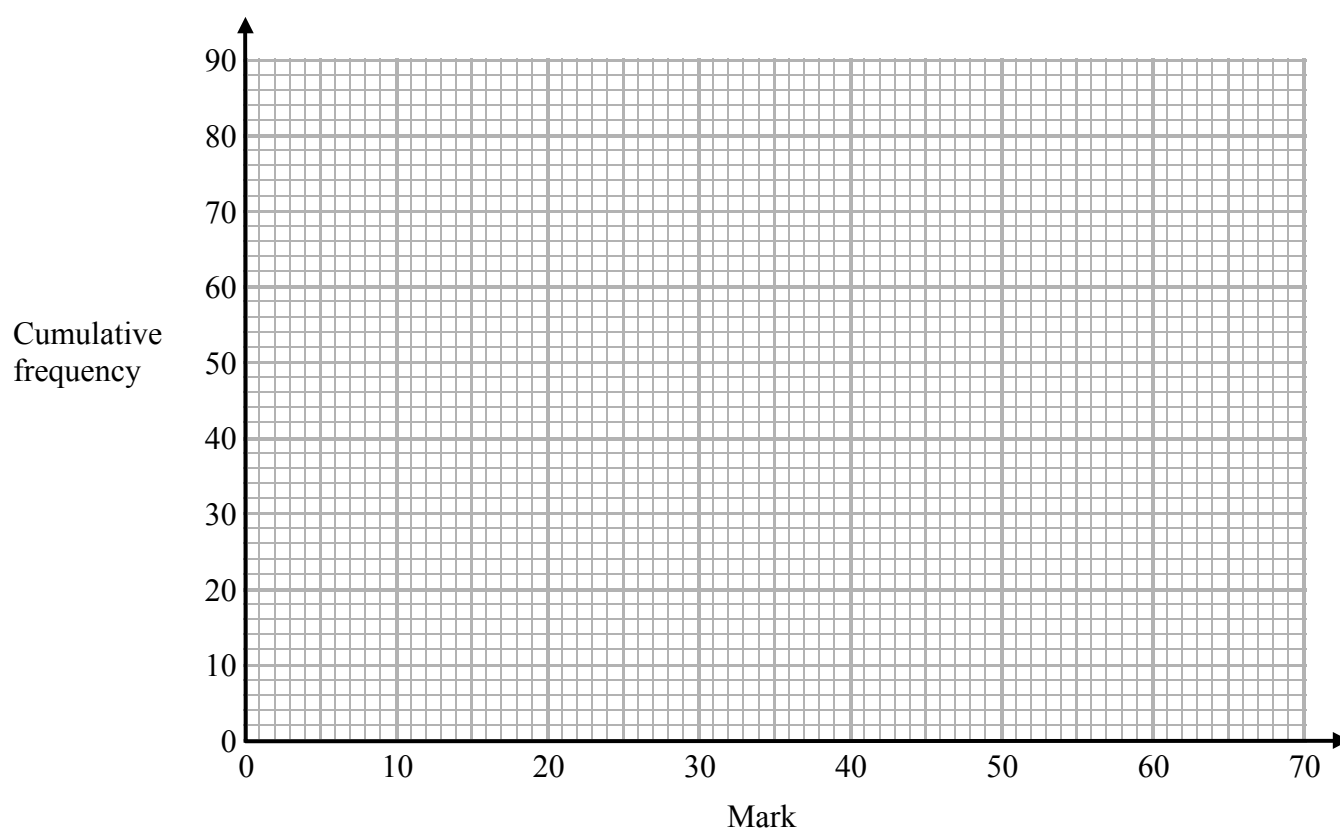
....packets of gold buttons

(Total for Question 2 is 3 marks)

3 The cumulative frequency table shows the marks some students got in a test.

Mark (*m*)	Cumulative frequency
$0 < m \leqslant 10$	8
$0 < m \leqslant 20$	23
$0 < m \leqslant 30$	48
$0 < m \leqslant 40$	65
$0 < m \leqslant 50$	74
$0 < m \leqslant 60$	80

(a) On the grid, plot a cumulative frequency graph for this information.

(2)

(b) Find the median mark.

....

(1)

Students either pass the test or fail the test.
The pass mark is set so that 3 times as many students fail the test as pass the test.

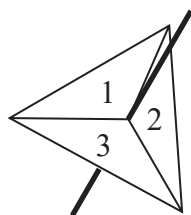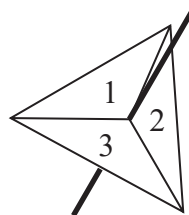(c) Find an estimate for the lowest possible pass mark.

....

(3)

(Total for Question 3 is 6 marks)

4 Write 0.000068 in standard form.

....

(Total for Question 4 is 1 mark)

5 Amanda has two fair 3-sided spinners.

Spinner A   **Spinner B**

Amanda spins each spinner once.
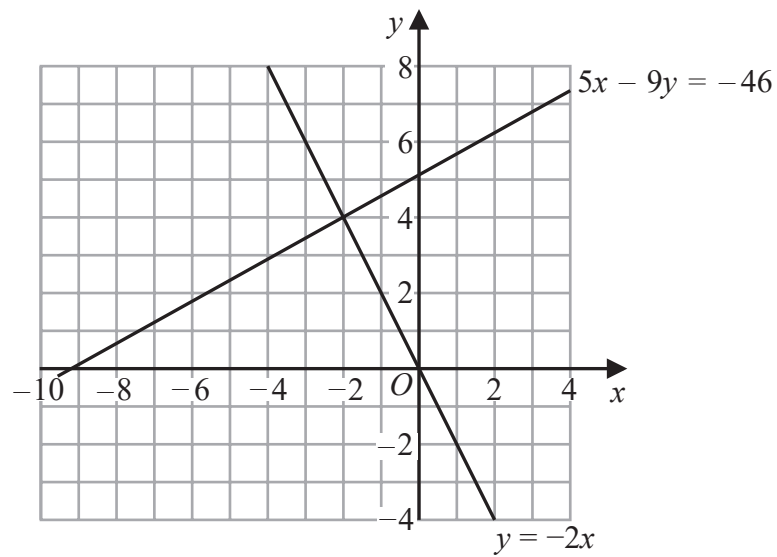
(a) Complete the probability tree diagram.
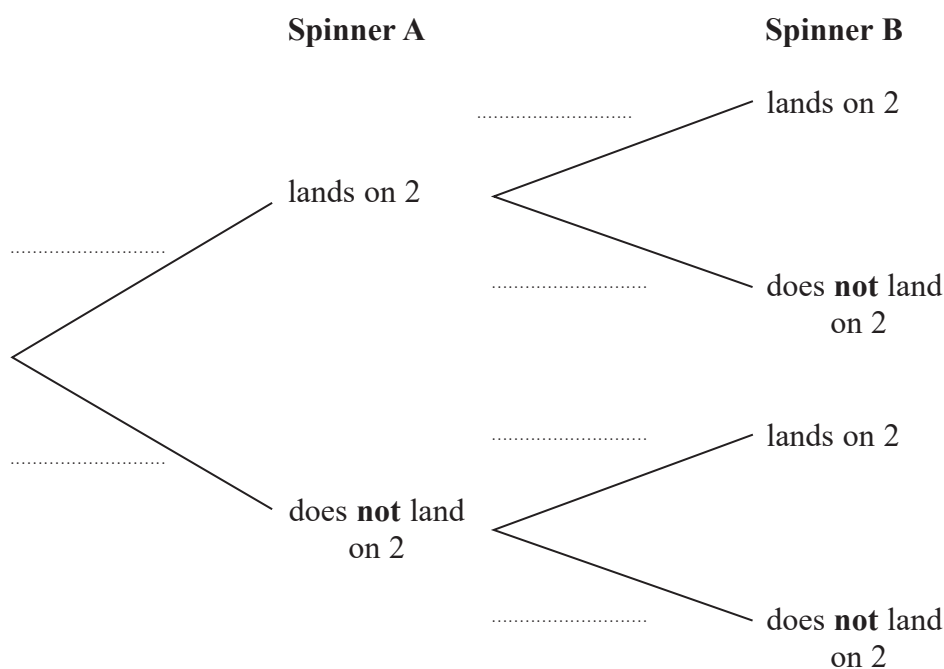
Spinner A   **Spinner B**

(2)

(b) Work out the probability that Spinner A lands on 2 and Spinner B does **not** land on 2

....

(2)

(Total for Question 5 is 4 marks)

6

(a) Use these graphs to solve the simultaneous equations

$$5x - 9y = -46$$
$$y = -2x$$

$x = $ ....

$y = $ ....

(1)
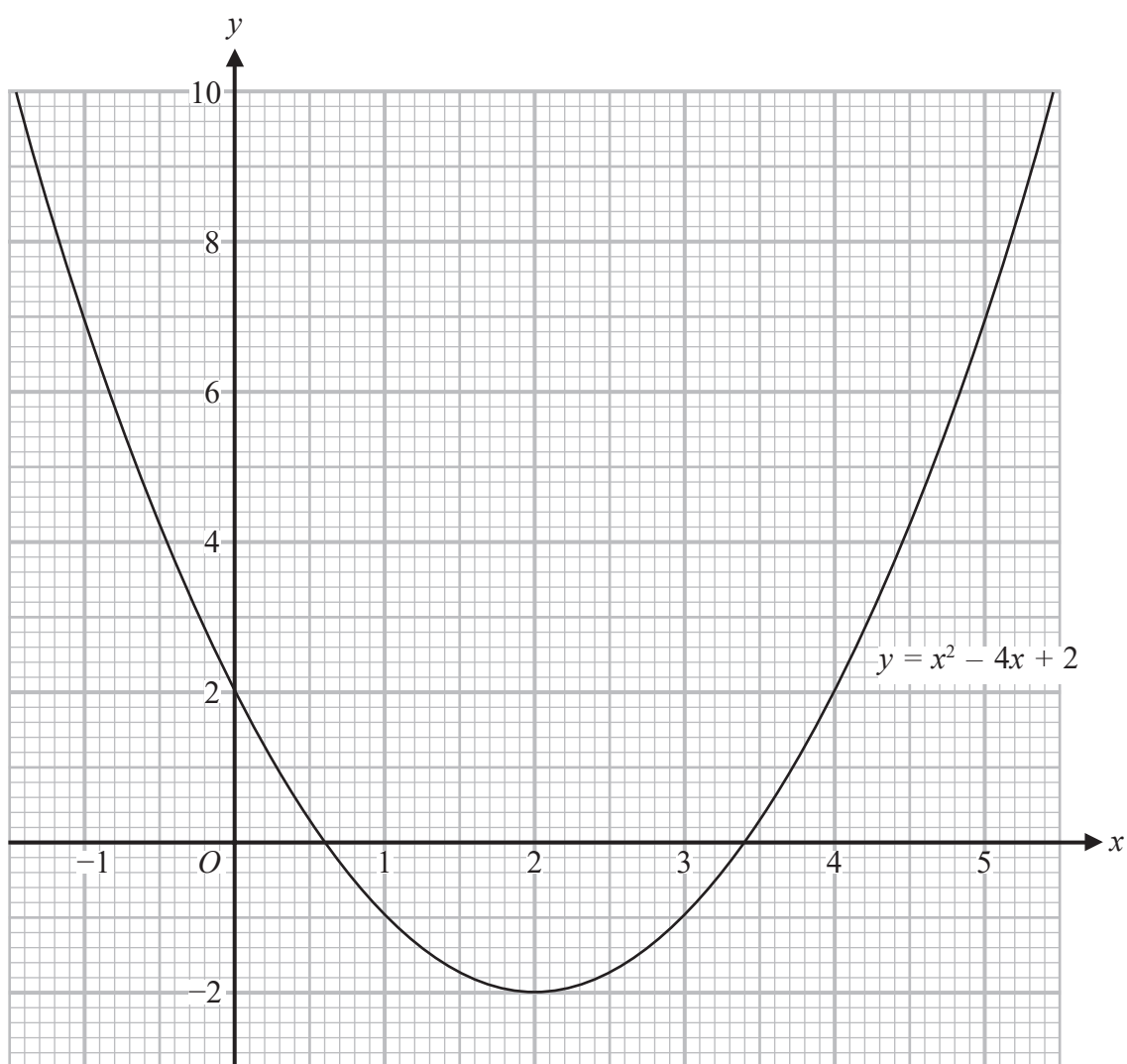
(b) Use this graph to find estimates for the solutions of the quadratic equation $x^2 - 4x + 2 = 0$

....

(2)

(Total for Question 6 is 3 marks)

7 There is a total of 45 boys and girls in a choir.

The mean age of the 18 boys is 16.2 years.
The mean age of the 27 girls is 16.7 years.

Calculate the mean age of all 45 boys and girls.

.... years

(Total for Question 7 is 3 marks)

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

The table shows the probabilities that a counter taken at random from the bag
will be blue or will be green.

Colour	blue	green	red	yellow
Probability	0.32	0.20		

The probability that a counter taken at random from the bag will be red is five times the
probability that the counter will be yellow.

There are 300 counters in the bag.

Work out the number of yellow counters in the bag.

....

(Total for Question 8 is 3 marks)