Probability 2 (H & F)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

Name:	
Total Marks:	

1. Some of the children at a nursery arrive by car.

   - 40% of the children at the nursery are boys.
   - 70% of the boys at the nursery arrive by car.
   - 60% of the girls at the nursery arrive by car.

What is the probability that a child chosen at random from the nursery arrives by car?

.... [5]

2. David has designed a game.

   He uses a fair 6-sided dice and a fair 5-sided spinner.

   The dice is numbered 1 to 6
   The spinner is numbered 1 to 5

   Each player rolls the dice once and spins the spinner once.
   A player can win £5 or win £2

Win £5	**Win £2**
roll a 5 **and** spin a 5	roll a 1 **or** spin a 1 **or** both

David expects 30 people will play his game.

Each person will pay David £1 to play the game.

(a) Work out how much profit David can expect to make.

£...[4]

(b) Give a reason why David's actual profit may be different to the profit he expects to make.

....

....[1]

3. A bag contains counters that are red, blue, green or yellow.

	red	blue	green	yellow
Number of counters	9	$3x$	$x - 5$	$2x$

A counter is chosen at random.

The probability it is red is $\dfrac{9}{100}$

Work out the probability it is green.

[4]

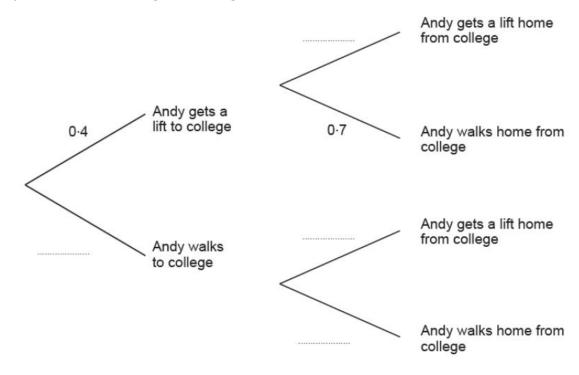4. Andy sometimes gets a lift to and from college.

   When he does not get a lift he walks.

   The probability that he gets a lift to college is 0·4.

   The probability that he walks home from college is 0·7.

   Getting to college and getting home from college are independent events.

(a) Complete the following tree diagram.

Andy gets a lift home from college

0·4 — Andy gets a lift to college

0·7 — Andy walks home from college

Andy walks to college

Andy gets a lift home from college

Andy walks home from college

[2]

(b) Calculate the probability that Andy gets a lift to college and walks home from college

[2]

(c) Calculate the probability that Andy does not get a lift to or from college.

[2]

5. Four friends each throw a biased coin a number of times.

The table shows the number of heads and the number of tails each friend got.

	Ben	Helen	Paul	Sharif
heads	34	66	80	120
tails	8	12	40	40

The coin is to be thrown one more time.

(a) Which of the four friends' results will give the best estimate for the probability that the coin will land heads?

Justify your answer.

[1]

Paul says: *"With this coin you are twice as likely to get heads as to get tails."*

(b) Is Paul correct? Justify your answer.

[2]

The coin is to be thrown twice.

(c) Use all the results in the table to work out an estimate for the probability that the coin will land heads both times.

.... [2]

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CREDITS AND NOTES

Question	Awarding Body
1	OCR
2	Pearson Edexcel
3	AQA
4	WJEC Eduqas
5	Pearson Edexcel

Notes:

These questions have been retyped from the original sample/specimen assessment materials and whilst every effort has been made to ensure there are no errors, any that do appear are mine and not the exam board s (similarly any errors I have corrected from the originals are also my corrections and not theirs!).

Please also note that the layout in terms of fonts, answer lines and space given to each question does not reflect the actual papers to save space.

These questions have been collated by me as the basis for a GCSE working party set up by the GLOW maths hub - if you want to get involved please get in touch. The objective is to provide support to fellow teachers and to give you a flavour of how different topics "could" be examined. They should not be used to form a decision as to which board to use. There is no guarantee that a topic will or won't appear in the "live" papers from a specific exam board or that examination of a topic will be as shown in these questions.

Links:

AQA http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300

OCR http://ocr.org.uk/gcsemaths

Pearson Edexcel http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

WJEC Eduqas http://www.eduqas.co.uk/qualifications/mathematics/gcse/

Contents:

This version contains questions from:

AQA – Sample Assessment Material, Practice set 1 and Practice set 2

OCR – Sample Assessment Material and Practice set 1

Pearson Edexcel – Sample Assessment Material, Specimen set 1 and Specimen set 2

WJEC Eduqas – Sample Assessment Material