Combinations (H)

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

Name:	
Total Marks:	

1. A restaurant menu has 8 starters, 12 mains and 6 desserts.

   A customer can choose from the following meals

   - a starter and a main,

   - a main and a dessert,

   - a starter, a main and a dessert.

   Show that there are 744 different ways of choosing a meal at this restaurant.

   [3]

2. There are 17 men and 26 women in a choir.
   The choir is going to sing at a concert.

   One of the men and one of the women are going to be chosen to make a pair to sing the first song.

(a) Work out the number of different pairs that can be chosen.

.... [2]

Two of the men are to be chosen to make a pair to sing the second song.

Ben thinks the number of different pairs that can be chosen is 136
Mark thinks the number of different pairs that can be chosen is 272

(b) Who is correct, Ben or Mark?

   Give a reason for your answer.

   [1]

3. There are 14 boys and 12 girls in a class.

Work out the total number of ways that 1 boy and 1 girl can be chosen from the class.

[2]

4. Marie has 25 cards.
Each card has a different symbol on it.
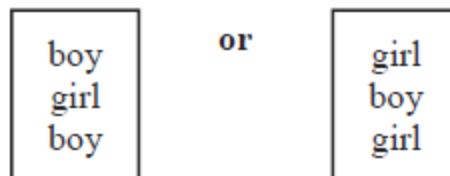
Marie gives one card to Shelley and one card to Pauline.

a) In how many different ways can Marie do this?

.... [2]

There are 12 boys and 10 girls in David's class.
David is going to pick three different students from his class and write their names in a list in order.

The order will be

boy   or   girl
girl   boy
boy   girl

b) How many different lists can David write?

.... [3]

5. Tony and Ian are each buying a new car.

There are three upgrades that they can select:

• metallic paint (10 different choices)
• alloy wheels (5 different choices)
• music system (3 different choices).

a) Tony selects all 3 upgrades.

Show that there are 150 different possible combinations.

[1]

b) Ian selects 2 of these upgrades.

Show that there are 95 different possible combinations.

[3]

6. A menu has a choice of 3 starters, 5 main courses and 4 desserts.

How many different choices of a 3-course meal are possible?

Circle your answer.

12   23   60   972

[1]

CREDITS AND NOTES

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

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