

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

The Product Rule for Counting

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

Write your name in the space provided.

Write your answers in the spaces provided in this question paper.

Answer ALL questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You should have a ruler, compass and protractor where required.

Total Marks :

1) How many multiples of 5 are there from 20 to 75 ?

Answer _____ [2]

2) In the city of Oxford, the bus route numbers consist of a whole number less than 50, followed by one of the letters A,B,C,D,E,F,G,H,J. How many different bus routes are possible?

Answer _____ [2]

3) A 2p coin is flipped 4 times. How many possible outcomes are there?

Answer _____ [2]

4) A country has designed a new flag. It must have the 3 colours of Purple Red and Blue and 3 columns, with each column a different colour. How many ways can the new flag be designed.

Answer _____ [2]

5) If you have 5 shirts and 4 pairs of trousers and any shirt can be worn with any pair of trousers, in how many ways can you wear your shirts and pairs of trousers?

Answer _____ [2]

6) A tourist wants to fly from Doha to Stansted. He can fly from Doha to Madrid, Amsterdam or Paris. From each of these cities there are four airline that fly to Stansted. In how many ways can he perform the journey?

Answer _____ [2]

7) A school is looking for 2 teachers to teach mathematics. 6 men and 8 women apply for the vacancies. How many ways are there to fill the vacancies if one vacancy is filled by a man and the other by a woman?

Answer _____[2]

8) In a school there are 6 English teachers, 2 Arabic teachers and 3 French teachers. A three member committee is to be formed with one teacher representing each language. In how many ways can this be done?

Answer _____[2]

9) How many three digit numbers greater than 700 can be formed using only the odd digits 1,3,5,7, 9 without repeating the digits?

Answer _____[2]

10) Juliet, Kevin, Linda, Mike and Nancy had put themselves forward to be class president and vice-president. How many ways can a President and a Vice President be selected from this group?

Answer _____[2]

11) Sophie's restaurant offers on its menu a choice of 4 starters, 9 main courses and 3 desserts.

- a) How many choices of 3-course meals (starter, main, dessert) are available?

Answer _____ [2]

- b) How many choices of starter and main course are offered?

Answer _____ [2]

- c) How many choices of main course and dessert are offered?

Answer _____ [2]

- d) How many choices of 2- or 3-course meals are available (assuming that a main course is always ordered)?

Answer _____ [2]

12) Mary is a runner in a race with 7 other runners. If we are concerned only with the first, second and third placings, in how many ways can Mary finish first or second or third?

Answer _____ [2]

13) How many different arrangements of the letters in the word MATHSNOTE are possible?

Answer _____ [2]

14) Jake is able to choose his work outfits from the following items of clothing: 6 shirts, 7 ties, 4 pairs of trousers, 8 pairs of socks and 2 pairs of shoes.

- a) How many different outfits are possible if he wears one of each of the above items? (He cannot wear odd socks or odd shoes)

Answer _____ [2]

- b) If Jake has the option of wearing one of four jackets and each of the above items, how many different outfits are possible? Explain your answer

Answer _____ [2]

15) British postal codes generally have 2 letters, digit between 1 and 99, one digit between 0 and 9 and finally 2 letters. How many postcodes are possible?

Answer _____[2]