

Name: _____

GCSE (1 – 9)

The Product Rule for Counting

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- 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

- 1** There are 12 boys and 15 girls in a class.
One boy and one girl will be selected to represent the class on the student council.
Work out the total number of ways of choosing a boy and a girl.

.....
(Total for question 1 is 2 marks)

- 2** There are 17 boys and 14 girls in a choir.
One boy and one girl will be selected to sing a duet.
Work out the total number of ways of choosing a boy and a girl.

.....
(Total for question 2 is 2 marks)

- 3** There are 14 boys and x girls in a choir.
One boy and one girl will be selected to sing a duet.
Taylor says there are 152 different ways of choosing a boy and a girl.

Could Taylor be correct?
You must show your working.

.....
(Total for question 3 is 2 marks)

4 There are 5 starters and 6 main courses in a restaurant.

Work out the total number of ways of choosing a starter and a main course.

.....
(Total for question 4 is 2 marks)

5 There are 4 starters, 7 main courses and 4 desserts in a restaurant.

Work out the total number of ways of choosing a starter, a main course and a dessert.

.....
(Total for question 5 is 2 marks)

6 There are 5 starters, 6 main courses and x desserts in a restaurant.

Riley says there are 130 different ways of choosing a starter, a main course and a dessert.

Could Riley be correct?

You must show your working.

.....
(Total for question 6 is 2 marks)

- 7 A meal deal includes a sandwich and a drink.
There are 5 sandwiches and 7 drinks to choose from.

Work out the total number of ways of choosing a sandwich and a drink.

.....
(Total for question 7 is 2 marks)

- 8 Mr Idris has 5 pairs of trousers, 9 shirts and 3 ties.

Work out the total number of ways of choosing a pair of trousers, a shirt and a tie.

.....
(Total for question 8 is 2 marks)

- 9 There are 8 sandwiches and x drinks to choose from for lunch.

Pat says there are 96 different ways to choose a sandwich and a drink.

Could Pat be correct?

You must show your working.

.....
(Total for question 9 is 2 marks)

- 10** There are 52 cards in a deck.
Peter is going to give one card to Casper and one card to Kelly.

How many different ways are there of doing this?

.....
(Total for question 10 is 2 marks)

- 11** There are 52 cards in a deck.
Angel is going to give one card to Ben and one card to Chris and one card to Dylan.

How many different ways are there of doing this?

.....
(Total for question 11 is 2 marks)

- 12** There are 52 cards in a deck.
Tom is going to give two cards to Jay.

How many different pairs of cards could Jay get?

.....
(Total for question 12 is 2 marks)

- 13** There are 30 students in a class.
Two students are going to be selected to receive a prize.

How many different pairs of students could be selected?

.....
(Total for question 13 is 2 marks)

- 14** There are 10 teams in a football league.
Two teams are going to be chosen at random to play a match.

Work out the number of different matches that could take place.

.....
(Total for question 14 is 2 marks)

- 15** There are 8 teams in a competition.
Each team will play every other team once.

Work out the total number of games played.

.....
(Total for question 15 is 2 marks)

- 16** There are 10 people in a room.
Each person shakes each other person's hand once.

Work out the number handshakes that take place.

.....
(Total for question 16 is 2 marks)

- 17** There are 20 people in a room.
Each person shakes each other person's hand once.

Work out the number handshakes that take place.

.....
(Total for question 17 is 2 marks)
