Name: SOLUTIONS

GCSE (1 - 9) Product Rule for Counting	Solutions:

These questions represent all of the times that this topic has appeared in unlocked Pearson Edexcel GCSE maths papers as of July 2023. More questions can be found at examq.co.uk

Question	Where the question appeared
1	Edexcel, GCSE, Autumn 2017, Paper 2H, Q15
2	Edexcel, GCSE, Autumn 2018, Paper 2H, Q11
3	Edexcel, GCSE, Autumn 2019, Paper 2H, Q14
4	Edexcel, GCSE, Autumn 2020, Paper 2H, Q11
5	Edexcel, GCSE, Summer 2017, Paper 3H, Q11
6	Edexcel, GCSE, Summer 2018, Paper 3H, Q14
7	Edexcel, GCSE, Summer 2019, Paper 1H, Q16

1

Tracey is going to choose a main course and a dessert in a cafe.
She can choose from 8 main courses and 7 desserts.

Tracey says that to work out the number of different ways of choosing a main course and a dessert you add 8 and 7

(a) Is Tracey correct?
You must give a reason for your answer.

No. You multiply 8 and 7, There are 56 different ways.

(1)

12 teams play in a competition.
Each team plays each other team exactly once.

(b) Work out the total number of games played.

$12 \times 11 = 132$

$132 \div 2 = 66$

(2)

(Total for Question 15 is 3 marks)

[Edexcel, GCSE, Autumn 2017, Paper 2H, Q15]

2

In a restaurant there are

9 starter dishes
15 main dishes
8 dessert dishes

Janet is going to choose one of the following combinations for her meal.

a starter dish and a main dish
or a main dish and a dessert dish
or a starter dish, a main dish and a dessert dish

Show that there are 1335 different ways to choose the meal.

$9 \times 15 = 135$

$15 \times 8 = 120$

$9 \times 15 \times 8 = 1080$

$1080 + 135 + 120 = 1335$

(Total for Question 11 is 3 marks)

[Edexcel, GCSE, Autumn 2018, Paper 2H, Q11]

3

Sadia is going to buy a new car.
For the car, she can choose one body colour, one roof colour and one wheel type.

She can choose from

19 different body colours
25 different wheel types

The total number of ways Sadia can choose the body colour and the roof colour and the wheel type is 3325

Work out the number of different roof colours that Sadia can choose from.

19 x 25 = 475

3325 ÷ 475 = 7

7 roof colours

(Total for Question 14 is 2 marks)

[Edexcel, GCSE, Autumn 2019, Paper 2H, Q14]

4

Jack is in a restaurant.
There are 5 starters, 8 main courses and some desserts on the menu.

Jack is going to choose one starter, one main course and one dessert.
He says there are 240 ways that he can choose his starter, his main course and his dessert.

Could Jack be correct?
You must show how you get your answer.

5 x 8 = 40

240 ÷ 40 = 6

Yes there could be 6 desserts

(Total for Question 11 is 2 marks)

[Edexcel, GCSE, Autumn 2020, Paper 2H, Q11]

5

Jeff is choosing a shrub and a rose tree for his garden.
At the garden centre there are 17 different types of shrubs and some rose trees.

Jeff says,

"There are 215 different ways to choose one shrub and one rose tree."

Could Jeff be correct?
You must show how you get your answer.

215 ÷ 17 = 12.647...

No because there can't be 12.647 rose trees.

(Total for Question 11 is 2 marks)

[Edexcel, GCSE, Summer 2017, Paper 3H, Q11]

6

There are 16 hockey teams in a league.
Each team played two matches against each of the other teams.

Work out the total number of matches played.

16 x 15 = 240

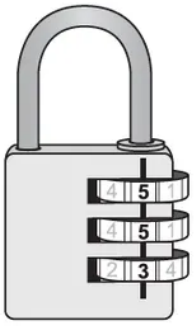
240

(Total for Question 14 is 2 marks)

[Edexcel, GCSE, Summer 2018, Paper 3H, Q14]

7

There are three dials on a combination lock.
Each dial can be set to one of the numbers 1, 2, 3, 4, 5
The three digit number 553 is one way the dials can be set, as shown in the diagram.



(a) Work out the number of different three digit numbers that can be set for the combination lock.

$5 \times 5 \times 5 = 125$

125

(2)

(b) How many of the possible three digit numbers have three different digits?

$5 \times 4 \times 3 =$ 60

(2)

(Total for Question 16 is 4 marks)

[Edexcel, GCSE, Summer 2019, Paper 1H, Q16]