

Product Rule for Counting

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **20**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

- 1** A café offers 3 starters, 5 main courses and 4 desserts.
Ella chooses one starter, one main course and one dessert.
How many different meals could she choose?

[1 mark]

Answer _____

- 2** A two-letter code uses the letters A, B, C, D and E.
Letters may be repeated.
How many different codes are possible?
Circle your answer.

[1 mark]

10

20

25

32

- 3** A password for a tablet is made of four letters.
Each letter is one of A, B, C, D, E or F

(a) How many different passwords are possible?

[1 mark]

Answer _____

(b) How many passwords are possible if no letter can be used more than once?

[2 marks]

Answer _____

- 4** How many three-digit even numbers are there?

[2 marks]

Answer _____

- 5** In how many different orders can the five letters of the word MATHS be arranged?

[2 marks]

Answer _____

- 6** A locker label is one letter followed by two digits.
The letter is a vowel: A, E, I, O or U
The two digits are different and neither of them is 0
How many different locker labels are possible?

[2 marks]

Answer _____

- 7** (a) A captain and a vice-captain are chosen from 6 players.
How many different ways can they be chosen?

[2 marks]

Answer _____

- (b) Two of the 6 players are chosen to go to a meeting.
How many different pairs of players are there?

[2 marks]

Answer _____

- 8** A smoothie bar makes each smoothie from one fruit, one base and one topping.
There are 5 bases.
The number of fruits is the same as the number of toppings.
There are 80 different smoothies possible.
How many toppings are there?

[2 marks]

Answer _____

- 9 Kim says,
“There are more ways to arrange the letters of the word PRISM
than there are three-digit codes that use the digits 1 to 7 with no
digit repeated.”

Is Kim correct?

You must show your working.

Tick one box.

[3 marks]

☐ Yes

☐ No