

Product Rule for Counting

Video 383 on www.corbettmaths.com

Examples



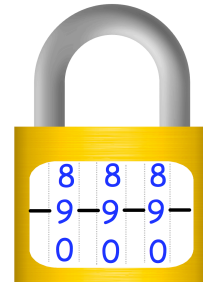
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Workout

Question 1: Shown is a 3-digit combination padlock.
Each dial can be set to 0, 1, 2, 3, 4, 5, 6, 7, 8, 9



- (a) Work out the total number of different combinations that can be used.
- (b) Work out the total number of different combinations that have three different digits that can be used.

Question 2: A restaurant has 4 starters and 6 main course on its menu.
Hailey orders a starter and a main course.

How many different combinations of starters and main courses are there?

Question 3: A rugby coach is designing a new rugby strip.
She can choose from: 5 different pairs of socks
6 different pairs of shorts
and 14 different jerseys.

How many different strips are possible?

Question 4: Harry picks a 4 digit pin for his credit card.
Each digit is a number 0 to 9.
Harry can repeat digits.



- (a) How many possible codes are there?

Harry chooses not to repeat any digits.

- (b) How many possible codes are there now?

Question 5: Rosie picks a 4-digit **odd** number.

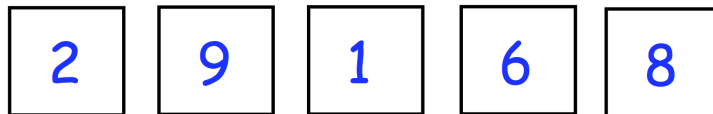
The first digit is 5.
The second digit is a 3 or a 4.
The third digit is prime.

How many different 4-digit numbers could Rosie pick?

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- Question 6: Oliver picks a 4-digit **even** number that is greater than 3000.
The second digit is a multiple of 4.
How many different numbers could Oliver pick?
- Question 7: Sophia is creating a 6-digit code to lock her iPad.
She only uses digits greater than 2.
She only uses each digit once.
How many possible codes can Sophia create?
- Question 8: In a class, there are 10 boys and 9 girls.
The teacher has been asked to pick one boy and one girl to win a prize.
How many possible pairs of students can the teacher pick?
- Question 9: Jason picks a 5-digit number that is less than 80000.
The first digit is odd.
The fourth and fifth digits are equal.
How many different numbers can Jason pick?
- Question 10: A headteacher wants to survey two Year 7 students.
There are 100 students in Year 7.
How many possible pairs of students can the headteacher pick?
- Question 11: How many even numbers greater than 40000 can be created using these digits?



Apply

- Question 1: On a school trip, students are given a packed lunch.
The students can choose one piece of fruit and one snack.
There are 8 different pieces of fruit and some different snacks.
Altogether there are 104 different ways to choose one piece of fruit and one snack
How many different snacks are there?

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Question 2: At a summer camp, children pick a morning, an afternoon and an evening activity.

There are 4 morning and 7 evening activities to pick from.

Altogether there are 224 different ways to choose their activities.

How many afternoon activities are there?

Question 3: In a gym there are

12 exercise classes on a Monday

13 exercise classes on a Wednesday

7 exercise classes on a Friday

Katie is going to attend either

a class on Monday and a class on Friday

or a class on Wednesday and a class on Friday

or a class on Monday, Wednesday and Friday

Work out how many different ways there are to pick which exercises classes Katie is going to attend.

Question 4: A group of 10 people enter a room.
Each person shakes hands, once, with all the other people in the room.

How many handshakes are there in total?



Question 5: A pizza parlour sells 9 different toppings.

Michael orders a pizza with 2 different toppings.

(a) How many different pizzas can he choose from?

Beth orders a pizza with 3 different toppings.

(b) How many different pizzas can she choose from?

John orders a pizza with 4 different toppings.

(c) How many different pizzas can he choose from?

Answers



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