Systematic listing and counting

ANSWERS

1

Three cards show 1, 6 and 8. List all the 3 digit numbers you can make using each card once.

1	6	8	1	8	6
6	1	8	6	8	1
8	1	6	8	6	1

Fix the first one. Change the rest in order.

How many? 6

2

Three cards show 3, 4 and 9. List all the 3 digit numbers you can make using each card once.

3	4	9	3	9	4
4	3	9	4	9	3
9	3	4	9	4	3

How many? 6

3

Mo puts three books on a shelf in a row: maths (M), art (R) and history (H). List all the orders he could put them in.

M	R	H	M	H	R
R	M	H	R	H	M
H	M	R	H	R	M

How many? 6

4

Three cards show 2, 5 and 6. List all the 3 digit numbers you can make using each card once.

2	5	6	2	6	5
5	2	6	5	6	2
6	2	5	6	5	2

How many? 6

5

A sandwich is one bread and one filling.
Breads: white (W), brown (B), seeded (S).
Fillings: cheese (C), egg (E), ham (H).
List all the sandwiches.

W	C	W	E	W	H
B	C	B	E	B	H
S	C	S	E	S	H

How many? 9

Product rule 3 × 3 = 9

6

A smoothie is made from two different fruits. Ali chooses from apple (A), banana (B), kiwi (K) and mango (M).
List all the smoothies he could make.

AB, AK, AM
BK, BM
KM

How many? 6

7

A breakfast is one kind of toast and one drink. There are 4 kinds of toast and 6 drinks. How many different breakfasts are there?

4 × 6 = 24

Answer 24

8

Wren lists the 3 digit numbers she can make using each of the cards 1, 5 and 9 once.

159 591 915 195 519 591

Explain what she has done wrong.

159, 195 / 519, 591 / 915, 951

Repeated 591

Missed 951

Systematic listing and counting *further practice*

ANSWERS

9

A pizza has two different toppings from ham (H), mushroom (M), olive (O), pepper (P) and sweetcorn (S). List all the pizzas.

HM, HO, HP, HS
MO, MP, MS
OP, OS
PS

How many? 10

10

An ice cream is one flavour, one sauce and one topping. There are 6 flavours, 2 sauces and 4 toppings. How many different ice creams are there?

6 × 2 × 4 = 12 × 4 = 48

Answer 48

11

Three cards show 3, 5 and 6. List all the <u>odd</u> 3 digit numbers you can make using each card once.

365
563
635, 653

How many? 4

12

A meal deal is one sandwich and one drink. A shop sells 4 drinks. There are 28 different meal deals. How many sandwiches does the shop sell?

? × 4 = 28, 28 ÷ 4 = 7

Answer 7

13

Five cards show 1, 4, 6, 8 and 9.
How many different 2 digit numbers can you make using two of the cards?

5 × 4 = 20

Answer 20

14

A bike lock code is two digits. Each digit is 1, 2 or 3, and a digit can be used twice.
List all the codes.

11, 12, 13
21, 22, 23
31, 32, 33

How many? 9

15

A meal is one starter and one main.
Café Lark has 4 starters and 6 mains.
Café Pine has 5 starters and 5 mains.
Which café can make more different meals?

Lark 4 × 6 = 24, Pine 5 × 5 = 25

Answer Café Pine

16

Finn, Gail, Hope and Ivo pick a captain and a vice captain. Leah says there are 6 ways, the same as picking any 2 of the 4.
Is Leah right? Explain.

4 × 3 = 12, swapping the jobs is a new way

Answer No, 12 ways: order matters