

Counting Puzzles

Practice — ANSWER KEY

Orders and handshakes.

Think: Every handshake is counted twice if you count per person — so divide by 2.

1. Answers with the thinking.

1) A café menu has 2 starters, 2 mains, and 2 desserts.
How many different three-course meals are possible? **8**

$$\hookrightarrow 2 \times 2 \times 2$$

3) A party menu has 5 starters, 3 mains, and 3 desserts.
How many different three-course meals are possible? **45**

$$\hookrightarrow 5 \times 3 \times 3$$

5) A shop sells 3 kinds of hats and 7 kinds of scarves.
How many one-of-each combinations are there? **21**

$$\hookrightarrow 3 \times 7$$

7) A café menu has 4 starters, 3 mains, and 4 desserts.
How many different three-course meals are possible? **48**

$$\hookrightarrow 4 \times 3 \times 4$$

9) 4 robots each shake hands with every other one exactly once. How many handshakes happen? **6**

$$\hookrightarrow 4 \times 3 \div 2$$

2) A shop sells 4 kinds of breads and 6 kinds of fillings.
How many one-of-each combinations are there? **24**

$$\hookrightarrow 4 \times 6$$

4) 5 robots each shake hands with every other one exactly once. How many handshakes happen? **10**

$$\hookrightarrow 5 \times 4 \div 2$$

6) A party menu has 5 starters, 5 mains, and 3 desserts.
How many different three-course meals are possible? **75**

$$\hookrightarrow 5 \times 5 \times 3$$

8) A shop sells 4 kinds of shirts and 4 kinds of pairs of pants. How many one-of-each combinations are there? **16**

$$\hookrightarrow 4 \times 4$$

10) A shop sells 6 kinds of hats and 3 kinds of scarves.
How many one-of-each combinations are there? **18**

$$\hookrightarrow 6 \times 3$$