Example 1.1. A restaurant offers a choice of 3 first courses, 4 main courses, and 5 desserts. How many different full course dinners are there?
A full course dinner is an element of the Cartesian product

$$\{\text{first courses}\} \times \{\text{main courses}\} \times \{\text{desserts}\}.$$

Multiplying the cardinalities of these sets we obtain the answer: $3 \cdot 4 \cdot 5 = 60$ different full course dinners are possible.