

Pizza problem

Thursday, November 8, 2018 1:14 PM

If there are 8 toppings possible
How many ways can we make a 2-topping pizza?

$$\frac{8 \cdot 7}{2 \cdot 1} = \frac{56}{2} = 28 \leftarrow \text{Combinations}$$

Choices for toppings

ways to build the same pizza - dividing by this number gets
Anchovies & Pepperoni is the same
as Pepperoni & Anchovies

$$\text{5 toppings: } \frac{8 \cdot 7 \cdot 6 \cdot 5 \cdot 4}{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} = 56$$

$$\text{3 toppings: } \frac{8 \cdot 7 \cdot 6}{3 \cdot 2 \cdot 1} = 56$$

8 toppings choose 13

$$\frac{2 \cdot 18 \cdot 17 \cdot 16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6}{13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} =$$