

The Fundamental Counting Principle

Multiplying all integers

To calculate the possible number of permutations,
use the following formula:

$${}_7P_7$$

$6P_3$

A mechanic working under a car requires three different size wrenches from her toolbox, which contains twelve different wrenches. Reaching for her toolbox, she grabs three of them at random. What is the probability that the mechanic has all of the wrenches she needs?

A class has eight girls and four boys. If the teacher randomly picks eight students, what is the probability that she will pick all girls?

Trevon and Shreya each purchase one raffle ticket. If a total of twelve raffle tickets are sold and two winners will be selected, what is the probability that both Trevon and Shreya win?