Answer on Question #50144 – Math – Combinatorics | Number Theory

3 buses have to cross a long bridge, and it is so narrow that a bus cannot overtake another. The buses can have only integer-number-velocities ranging from 10ms^{-1} to 20ms^{-1} and no two buses can have the same speed. How many ways the velocities can be distributed among the buses so that they can cross the bridge without any accident?

Solution:

We can choose integer values from 10ms^{-1} to 20ms^{-1}, hence the number of velocities is

$$n = 11$$

When choosing **r** = 3 of them we have permutations formula

$$K = \frac{n!}{(n-r)!\,(r!)} = \frac{11!}{(11-3)! * 3!} = 165$$

Answer: 165.