Question #68647, Math / Statistics and Probability

A bus starts with 6 people and stops at 10 different stops, how many different ways can the 6 people depart if any passenger can depart at any bus stop

Answer.

Number of the ways the stops at which no passenger gets off the bus could be selected:

$$N_1 = P_{10}^4 = \frac{10!}{(10-4)!} = 5040.$$

Number of the ways 6 people can be arranged to get off at distinct stops:

$$N_2 = 6! = 720.$$

So, $N = N_1 N_2 = 5040 * 720 = 3628800.$