DISCRETE STRUCTURES – QUIZ #8

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2-BSCS-2

1. There are 18 mathematics majors and 325 computer science majors at a college.

   a.) In how many ways can two representatives be picked so that one is a mathematics major and the other is a computer science major?

   Mathematics major: 18
   CS Majors: 325

   18 x 325 = **5,850 ways.**

   b.) In how many ways can two representatives be picked who is either a mathematics major or a computer science major?

   18 + 325 = **343 ways.**

2. A drawer contains a dozen brown socks and a dozen black socks, all unmatched. A man takes socks out at random in the dark.

   a.) How many socks must he take out to be sure that he has at least two socks of the same color?

   *He must pick **3 socks** to be sure that he'll get a pair of socks with the same color.*

   b.) How many socks must he take out to be sure that he has at least two black socks?

   *He must pick **14 socks** just to make sure that there will be two black socks as there might be a coincidence where he may pick all the brown socks, so by adding another two, he'll surely pick a pair of black socks.*

3. List all the permutations of { a, b, c }

   All permutations are:

   (a, b, c) (a, c, b)
   (b, a, c) (c, a, b)
   (b, c, a) (c, b, a)