

Quiz 4

Every answer must be fully justified. Show your work!!! Your answers may include factorials if appropriate, but do not leave expressions like ${}_2P_{50}$ or ${}_2C_{50}$.

1. For this problem assume that in Illinois license plates have to be made up of 2 letters followed by 4 digits (for example, HF 2335 or AA 0679).

(a) How many different Illinois license plates are possible?

(b) How many different Illinois license plates are possible that begin with A and have no zeroes in them (for example, AX 3356 or AA 9872)?

(c) How many different Illinois license plates are possible that have all of the digits the same (for example, CD 7777 or EE 0000)?

2. Suppose that you are asked to rank your top 10 movies in order out of a list of 200 movies. How many possible ways are there to do this?

3. Suppose that out of a group of 30 people waiting to get backstage, a group of 4 people are chosen to go back and meet a rock band.

(a) How many different possible groups are there?

(b) If Jane is one of the people in line, how many different possible groups are there that include Jane?