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A02052161

9. Complete the following assignment prior to Meeting #13

A. Study our notes from Meeting #12.

B. Comprehend Jim's sample response to Quiz 12.

C*. Solve Lunar's problem and display your computation (As usual upload the resulting pdf document on the appropriate *Canvas* Assignment link):

> The Osceola jail contains a row of 10 cells. Each of 10 inmates is randomly assigned to exactly one of those side-by-side cells. None of the 10 prisoners are exhibiting symptoms of the COVID-19 disease. However, unbeknownst to the correction officers who manage the jail, 5 of the 10 prisoners are carriers of the COVID-19 virus. Lunar would like to determine the probability of the event that no uninfected person occupies a cell next to an uninfected person.

E. From the Video Page of *Canvas*, view with comprehension the video "permutations."

F. Comprehend Jim's sample responses to the homework prompts that are posted on *Canvas*.

C*)

P(no uninfected is next to uninfected) = ?

$_{10}P_{10} = 10!$

we know that there are 10! possible orderings.

These are the only 2 options, but people can be in any spot...

120 + 120 + 120 + 120 = 480

$5! \cdot 5! = 14400$ for the first option

$+\ 14400$ for second option

28800

$P(\text{no uninfected next to uninfected}) = \frac{28800}{10!} = .008$

I needed to look at your sample solution to see how to use the 5!.

I knew that somehow I would need to count all the ways they could be arranged in the 2 ways, but I wasn't sure how to count that as a permutation