Homework Quiz 1

Ms362K

Name: Solutions

Answer the question. You may use your HW on this quiz. There is no need to simplify your answers.

1. (1 point) (p. 15, #8) How many different letter arrangements can be made from propose?

\[
\frac{7!}{2! \cdot 2!} = \frac{7!}{4} = 1260
\]

2. (3 points) (p. 15, #10) How many ways can 8 people be seated in a row if:

a) there are no restrictions on the seating arrangement?

\[8! = 40320\]

b) Person A must sit next to person B?

\[7! \cdot 2 = 10080\]

c) There are 5 men and the must sit next to each other?

\[4! \cdot 5! = 2880\]
3. (2 points) (p, 15, #1) a) How many different 7-place license plates are possible if the first 2 places are for letters and the other 5 for numbers?

\[ 26^2 \cdot 10^5 \]

b) Repeat part (a) under the assumption that no letter or number can be repeated in a single license place.

\[ (26 \cdot 25)(10^9 \cdot 9 \cdot 8 \cdot 7) \]

4. (4 points) (p. 16, #20) A person has 8 friends, 5 of whom are invited to a party.

a) How many choices are there if 2 of the friends are feuding and will not attend together?

\[ \text{Neither person} + \text{person A not B} + \text{Person B not A} \]

\[ \binom{6}{5} + \binom{6}{4} + \binom{6}{4} \]

or \[ \binom{8}{3} - \binom{6}{3} \]

b) How many choices if 2 of the friends will only attend together?

\[ \binom{6}{5} + \binom{6}{3} \]

neither attend \hspace{2cm} both attend