Unit 3 Discussion Example - Applications of Counting Techniques

Post 2: Reply to a Classmate

1) My classmate's post had the following counting problem question,

"How many different 3-person focus groups can be formed from the 20 people who originally took the survey?"

This is a combination problem, but I can change it to a permutation problem by requiring that:

- one person serve as the spokesperson for the group,
- one person as the notetaker, and
- one person as the timekeeper.

This is now a permutation problem since each person will be selected for a specific position in the focus group.

n = 20 and r = 3.

2) I will use the permutation formula of $P(n,r) = \frac{n!}{(n-r)!}$

$$P(20,3) = \frac{20!}{(20-3)!} = \frac{20!}{17!}$$

I like to use Google as my calculator and I typed the following

20! / 17! = 6840

3) There are 6840 different permutations of 3-people from the 20 person survey group. I can form 6840 different 3-person focus groups with a spokesperson, notetaker and timekeeper, to help me improve my computer software!