

Instructions: Show all work to receive full credit. You should note any formulas used or calculator functions used, their inputs and outputs. I cannot grade work if I don't know where an answer came from. Be sure complete all parts of each questions, including requests for interpretation and explanations. Be as thorough as possible.

1. Suppose that a padlock has numbers 1-30 listed on the face of its dial. Three of these numbers can be used in any order to make a combination for the lock. How many such lock sequences are possible?

$$30^3 = 27,000$$

2. A committee of 5 people is selected from a 15-member faculty. How many such committees can be formed?

$$15C5 = 3003$$

3. If 8 of the faculty are women and 7 are men, how many such committees will have 2 women and 3 men?

$$(8C2)(7C3) = 980$$

4. Suppose you have ten tiles from a Scrabble game, all of which have a unique letter on them. How many sequences of 4 letters can you create from this set?

$$10P4 = 5040$$