QUICK REVIEW: CLAST SKILL I.D.3

Use the fundamental counting principle

Some Guidelines:

* The basic counting rule: the total number of ways that several outcomes can occur equals the product of the individual number of ways for each outcome, where "order is important."
* The permutation rule: The number of possible permutations of r objects from a collection of n objects is ${}_nP_r = \frac{n!}{(n-r)!}$, where "order is important" and "repetition is NOT allowed."
  $[\, n! = n(n-1)(n-2)...(2)(1)\,]$
* The combination rule: The number of possible combinations of r objects from a collection of n objects is ${}_nC_r = \frac{n!}{r!(n-r)!}$, where "order is NOT important" and "repetition is NOT allowed."

1. If there are six students, how many different ways can they sit in a row?

   a) 720 b) 64 c) 46656 d) 128

2. If there are six students and there are only three seats in the front row, how many different ways can three of them sit in the front row?

   a) 240 b) 120 c) 24 d) 64

3. A club's board members consist of five sophomore members and four freshman members. Two sophomore members will be selected to attend an international conference. How many ways may the selection be made?

   a) 20 b) 10 c) 120 d) 30

4. A club's board members consist of five sophomore members and four freshman members. Two freshman members will be selected to attend an international conference. How many ways may the selection be made?

   a) 3 b) 6 c) 12 d) 24

5. A club's board members consist of five sophomore members and four freshman members. Two sophomore members and two freshman members will be selected to attend an international conference. How many ways may the selection be made?

   a) 30 b) 60 c) 120 d) 240