b. Possibly skip some items.

c. Don't get more than 2 of any particular item.

2. After a late night of math studying, you and your friends decide to go to your favorite tax-free fast food Mexican restaurant, *Burrito Chime*. You decide to order off of the dollar menu, which has 6 items. Your group has $17 to spend (and will spend all of it).

a. How many different orders are possible? (The *order* in which the order is placed does not matter - just which and how many of each item that is ordered.)

b. How many different orders are possible if you want to get at least one of each item?

c. How many different orders are possible if you don't get more than 4 of any one item?

3. After another gym class you are tasked with putting the 14 identical dodgeballs away into 5 bins. This time, no bin can hold more than 6 balls. How many ways can you clean up?

4. Consider the equation $x_1 + x_2 + x_3 + x_4 = 19$. How many solutions are there with $1 \leq x_i \leq 6$ for all $i \in \{1, 2, 3, 4\}$?;

5. Suppose you planned on giving 7 gold stars to some of the 12 star students in your class. Each student can receive at most one star. How many ways can you do this?

a. Use Pascal's triangle to find the numeric answer.

a. Use the Principle of Inclusion and Exclusion.

6. How many permutations of $\{1, 2, 3, 4\}$ leave exactly 1 element fixed?

7. 12 ladies of a certain age drop off their red hats at the hat check of a museum. As they are leaving, the hat check attendant gives the hats back randomly. In how many ways can exactly 8 of the ladies receive their own hat (and the other 4 not)?

8. The Grinch sneaks into a room with 8 Christmas presents to 8 different people. He proceeds to switch the name-labels on the presents. How many ways could he do this if:

a. No present is allowed to end up with its original label? Explain what each term in your answer represents.

b. Exactly 4 presents keep their original labels? Explain.

c. Exactly 7 presents keep their original labels? Explain.