Discrete. Spring 20 Quiz 11. Name _____ Time_____
Show all work for full or partial credit.

1.

Given $\mathcal{U} = \{5, 4, 7, 9, 10, 15\}$; $A = \{7, 9, 10\}$; and $B = \{5, 4, 7, 10\}$. Find the following:

- $|A \cup B|$.

- The number of subsets of size 3 of $A \cup B$.

2. How many different committees of 4 people can be selected from a group of 10 people?

3. How many ways can 5 books be distributed to 4 shelves on a bookcase? (No ordering of the books on the shelves, just a loose pile.)

4. How many ways can 5 books be distributed to 4 shelves on a bookcase, if there is at most 1 book on the bottom shelf? (No ordering of the books on the shelves, just a loose pile.)

5. How many ways can we plan for 4 books to be placed on a bookcase with 5 shelves? (No books on the shelves yet, just the plan.)

6. How many ways are there to put 4 books on the 5 shelves of the bookcase in ordered rows?