Homework 2

Do the following problems. Make sure to show your explanation. The odd-numbered problems have the answer key in the back of the book.

Problem 2 of 1.2: Compute the following values.

(a) $P(5,1)$
(b) $P(5,2)$
(c) $P(7,3)$
(d) $P(5,5)$
(e) $P(6,0)$
(f) $P(100,2)$

Problem 17 of 1.2: How many ways are there to arrange 10 people in a line? Suppose it took 1 minute to rearrange these 10 people in any order you desired. How many years would it take to try out all of the possibilities.

Problem 26 of 1.2: How many 5 letter words can be formed if no letter is allowed to be used more than once in any word? (A word is any combination of letters - it does not have to be meaningful.) ?

Problem 30 of 1.2: How many ordered triples of letters are there, taken from the letters A, T, C and G

(a) if repeated letters are allowed?
(b) if repeated letters are not allowed?

Problem 32 of 1.2: Suppose you wish to arrange 2 math books, 5 chemistry books, and 4 history books on a single bookshelf.

(a) In how many ways can this be done?
(b) In how many ways can this be done if the math books must come first, then the chemistry books, and finally the history books?
(c) In how many ways can this be done if all of the books of the same subject must be kept together?

Problem 21 of 1.3: Use formula $C(n,k) = \frac{n!}{(n-k)!k!}$ to compute $C(15,14)$.

Problem 23 of 1.3: Use formula $C(n,k) = \frac{n!}{(n-k)!k!}$ to compute $C(20,7)$.