Math 301 Assignment 8

These problems are due in class on Tuesday. If your homework takes up multiple pages, they must be stapled together. Your work must be legible, and any frills from notebook paper must be removed.

Book Exercises

Section 6.1: # 6, 12, 14, 16, 26, 32
Section 6.2: # 4, 10, 34
Section 6.3: # 6, 12, 22, 34, 36

Additional Exercises

#1. Write a recursive algorithm that computes $P(n,r) = \frac{n!}{(n-r)!}$.

(For example, $P(10,2) = \frac{10!}{8!} = 10 * 9$ and $P(10,3) = \frac{10!}{7!} = 10 * 9 * 8$)

#2. Write a recursive algorithm that computes $C(n,r) = \frac{n!}{(n-r)!r!}$.

#3. If $r > n$, then $P(n,r) = C(n,r) = 0$. Why does this follow from the algorithms you wrote? (Do not write a separate if$(r > n)$ condition in your algorithms.)

Practice Problems

Section 6.1: # 1, 5, 7, 9, 11, 13, 15, 17, 25, 33
Section 6.2: # 3, 9, 31, 33, 35
Section 6.3: # 5, 11, 19, 21, 31, 33, 35, 37