For Wednesday, October 2.

Growth of functions

We will first look at the growth of functions, which is in Section 3.2. The following outcomes are anticipated:

- Know the definition of O, Ω, and Θ. Read Definition 1 on page 205; Definition 2 on page 214; and Definition 3 on page 215.
- Given a set of functions from N to R^+, be able to pairwise relate and order them using O, Ω, and Θ.
- Given the O, Ω, or Θ relation of two functions f and g, be able to estimate $f * g$ and $f + g$?
- Know the Big-O approximation for some important functions.
- Know what does it mean to say that two functions f and g, have the same order?

More sums.

Be able to evaluate each of the following sums:

$$\sum_{i=1}^{n} i$$

$$\sum_{i=1}^{i} i^2$$

$$\sum_{i=1}^{n} i(i+1)$$

$$\sum_{i=k}^{n} i \quad where\ 0 \leq k < n$$

$$\sum_{i=0}^{n} r^i \quad Need\ to\ consider\ 0 < r < 1, \qquad r = 1, \qquad and\ r > 1$$

We've already looked at the first two, but we will revisit them and bound them using the Big-0 notation.