Quick tricks about Big-O

- When comparing two polynomials, the degree is the only thing that matters.
  So n^5 grows faster than n^3.
  Therefore, n^3 is $O(n^5)$.
- When comparing two functions $f(n)$ and $g(n)$ where one or both are written as the sum of simpler functions, just compare the fastest growing terms.
  So $500n^2 + n^5$ is dominated by n^5, and $g(n) = 200n + \frac{n!}{200}$ is dominated by $\frac{n!}{200}$.
  Therefore, $500n^2 + n^5$ is $O(200n + \frac{n!}{200})$.