Math 2001, Spring 2023. Katherine E. Stange.

# 1 Assignment

Prove the following theorem.

**Theorem 1.** *There exists an $M \in \mathbb{R}$ such that for all $x > M$, it is true that $x^3 > 10x^2 + 3$.*

*Comment: This is an example of the sort of statement you have to deal with when dealing with big-Oh notation, which is used to discuss runtimes in computer science. If you are having trouble parsing the statement, ask the computer to draw the two graphs $y = x^3$ and $y = 10x^2 + 3$ and think about where they two graphs cross.*