Math 2326 - Introduction to Abstract Mathematics
Assignment 22 - Due Wednesday, March 12

Problem 77: Suppose that G is a group and $x \in G$. Prove that $x^n = e$ if and only if n is divisible by the order of x.

Problem 78: Let G be a group and suppose $g \in G$ with $|\,g\,| = \infty$. Show that all distinct powers of g are distinct group elements in G. (This was the first part of a theorem stated in class.)

Problem 79: It can be shown that $U(27) = \langle 2 \rangle$. Without computing $\langle x \rangle$ for every $x \in U(27)$, find all generators of $U(27)$.