Quiz 2.1

1. What does it mean for a problem to be undecidable?

2. How do we use Turing reductions to prove a problem is undecidable? That is, what is the “template” that we follow for our undecidability proofs?

3. Argue (using Turing reductions) that the following problem is undecidable.

   Problem **LONGERTHAN3ONALL**
   - Input: A program $P$
   - Solution: “yes” if, for all $I \in \Sigma^*$, $|P(I)| > 3$; “no” otherwise