1. Are all infinite languages uncomputable? Justify your answer.
2. Suppose that *A* and *B* are languages. What is the definition of a Turing reduction from *A* to *B*?
3. Define $L\_{1}=\left\{p \right| Run\left(p,p\right)\downright $} and $L\_{2}=\left\{\left(p,x\right) \right| Run(p,x)\downright \}$. Give a Turing reduction from $L\_{1}$ to $L\_{2}$.
4. Define $L\_{1}=\left\{p \right| Run(p,1)\downright \}$ and $L\_{2}=\left\{p \right| Run(p,1)\uparrow \}$. Give a Turing reduction from $L\_{1}$ to $L\_{2}$.
5. Suppose that $A$ and $B$ are languages over alphabet $Σ $where $B$ is computable and $A ⊆B$. Is it necessarily true that $A$ is computable? Justify your answer.

Think this out. Don’t guess. Suppose that $B= Σ^{\*}. $What are the subsets of $B$?