This is a “true-false”-answer quiz, so that we have more time to go over your HW 4 problems in class today and so this quiz can with luck be graded and returned to you this same class session. You can put scrap work on the bottom of this page or the back, but we’ll grade each problem all or nothing, 20 points each, based on whether you give the correct (True or False; do make sure to write out the entire word, not just T or F) answer on the given answer line.

**Question 1.** (True or False) There exists a set $A \subseteq \{0, 1\}^*$ such that neither $A$ nor $\overline{A}$ has an infinite r.e. superset.

**Question 2.** (True or False) $\{x \mid M_x(x) \text{ accepts}\} \leq_m \{x \mid M_x(\epsilon) \text{ accepts}\}$.

**Question 3.** (True or False) One can use one of our two Rice Theorems to show that this set is not recursive: $\{i \mid (\exists x)[M_i \text{ on input } x \text{ runs for an odd number of steps}]\}$.

**Question 4.** (True or False) Every infinite RE set has an infinite $\Pi_1$ subset.

**Question 5.** (True or False) There exists a set $A \subseteq \{0, 1\}^*$ such that neither $A$ nor $\overline{A}$ has an infinite r.e. subset.