1. (0 points) What is your name? Write it clearly. Staple your HW. When is the midterm (give Date and Time)? If you cannot make it in that day/time see me ASAP. Join the Piazza group for the course. The codename is cmsc858. READ the note on the class webpage that say THIS YOU SHOULD READ that you haven't already read.

2. (100 points) For this problem you may assume the following lemma is true:

   Lemma: Let X be infinite. Let $COL : \binom{X}{4} \to \omega$. You may assume the following: *Assume that*

   $(\forall x, y, z \in X)(\forall c \in \omega)[\deg_c(x, y, z) \leq 1].$

   $(\forall x, y \in X)(\forall c \in \omega)[\deg_c(x, y) \leq 1].$

   $(\forall x \in X)(\forall c \in \omega)[\deg_c(x) \leq 1].$

   Then there exists an infinite rainbow set.

   You may also assume that the 1-ary, 2-ary, and 3-ary infinite Can Ramsey Theorems are true. PROVE the 4-ary infinite Can Ramsey Theorem. (Your proof should be similar to the 3-ary infinite Can Ramsey that we did correctly in class.)