MATH 344 COMBINATORICS **Name:** (please print) _____

Quiz Two

No notes. No calculators.
Write clearly and explain your reasoning.

Student Number:

1 (10 points)

(a) (5 points) Find a graph G with 7 vertices such that G and its complement both have an Euler cycle. (No explanation is required, just *clear* pictures of G and its complement.)

(b) (5 points) Is it possible to find a graph G with 6 vertices such that G and its complement both have an Euler cycle? If so, find one (as in part (a)). If not, explain why it is not possible.

2 (10 points) Show that the graph below is non-planar. You may use the circle-chord method or the method derived from Euler's formula. You may *not* use Kuratowski's theorem.