Solutions to Real Quiz 4

NAME: Dr. Z.

1. (8 points, 2 points each) Which of the following graphs is Eulertian? Semi-Eulerian? **EXPLAIN** (no credit for just the answer, even if it is correct).

(a): The five-dimensional unit cube

Ans. to (a): Neither, all the 32 vertices have odd degree (namely 5). To be Eulerian you can't have any odd degrees and to be semi-Eulerian you can have only two.

(b): The ten-dimensional unit cube

Ans. to (b): Eulerian. All 1024 vertices have even degree (namely 10).

(c): The complete bipartite graph $K_{4,5}$

Ans. to (c): Neither. There are four vertices (those on the top) of degree 5.

(d): The Petersen graph

Ans. to (d):Neither. All ten vertices have odd degree (namely 3).