MATH 11008 | Explorations in Modern Mathematics | Fall 2014

Circle one: 9:55 / 12:05 | Dr. Kracht

Name: _____ Quiz Score: ____/20

Quiz 2

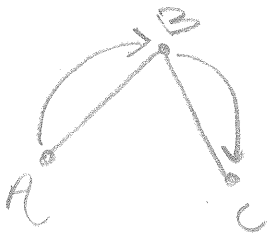
For each conjecture, indicate whether it is true or false. If true, give a proof (a logical argument in paragraph form). If false, give a counter example (a specific graph for which it fails, with explanation).

1. **Josh's and Jaden's Conjecture:** *If there are the same number or more odd than even degree vertices in a graph, then there is no Euler path.*

   (a) Circle one: TRUE or (FALSE)

   (b) Proof or counter example:

This conjecture is false because the following graph has 3 points, 2 of which have odd degree vertecies of 1. Because the graph has more odd degree vertices than even, and there is still an Euler path, Josh and Jaden are incorrect.



2. **Alex's and Jess's Conjecture:** *If there are more than two vertices of odd degree in a graph, then there is no Euler path.*

   (a) Circle one: (TRUE) or FALSE

   (b) Proof or counter example:

This is true because for a graph to have an Euler path you must be able to go in and out of all points, with the exception of the beginning and end of the path. If there are more than 2 vertices with odd degrees, then there will be no path, because you will come in, and be "stuck" at the point, unable to come out.