Name: _____

Directions: Show all work.

1. [**2 parts, 3 points each**] Graphs with specified degrees.

   (a) Is there an 8-vertex graph in which half the vertices have degree 3 and the other half have degree 4? Either give an example or explain why not.

   (b) Is there a 10-vertex graph in which half the vertices have degree 3 and the other half have degree 4? Either give an example or explain why not.

2. [**4 points**] Use the Petersen graph (displayed below) to show that $K_{10} \nrightarrow K_3, K_5$. What can we conclude about $r(3, 5)$?