

Fifth Quiz for CSI35

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Directions: This quiz is due Thursday November 19, at 4:00 PM.

1. On a 3×4 chessboard there are three white knights on the top row and three black knights on the bottom row, as shown in the following picture. Using only legal moves,

W	W	W
B	B	B

interchange the black and white knights in as few moves as you can.

Hint. This week we studied graphs.

2. A graph G has six vertices with the following degrees: 5, 3, 3, 2, 4, 1.
 - (a) How many edges does G have?
 - (b) Draw two different such graphs.
3. Prove that in every simple graph there are at least two vertices with the same degree.
4. For each of the families of graphs K_n , L_n , C_n , W_n , and Q_n :
 - (a) find a formula for the number of edges of the graph.
 - (b) Determine whether the graph is 2-colorable.