For each problem, <u>show your work neatly on a separate sheet of paper</u>.

1.   How many edges does K_6 have? Explain (without counting one by one).

2.   Suppose a graph G has 20 edges, and that it has 8 vertices of degree 3 and all the other vertices have degree 4. What is the total number of vertices in G? Show your reasoning.

3.   Is it possible that each person in a group of nine individuals can shake hands with all but three of the others? Explain.

4.   Is K_4 bipartite? Justify your answer.

5.   Is this graph bipartite? Justify your answer.
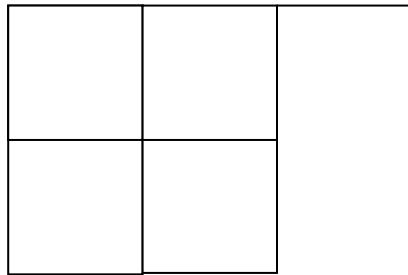
6.   Exercise Set 1.4 # 3c

7.   Exercise Set 1.4 # 3h

8.   Exercise Set 1.4 # 7a

9.   Exercise Set 1.4 # 7c

10. Exercise Set 1.4 # 8