Definition: K_n is the complete graph with n vertices. Namely, a graph with edges connecting each of the n vertices

1. Using the above definition of K_n, we would like to be able to say something about the number of vertices, edges, and (if the graph is planar) faces. Let's first consider K_3

   (a) How many vertices does K_3 have? How many edges?

   (b) If K_3 is planar, how many faces should it have?

2. Repeat parts (a) and (b) from question 1 for K_4

3. Repeat parts (a) and (b) from question 1 for K_5

4. Repeat parts (a) and (b) from question 1 for K_{23}

$K_{m,n}$ is the complete bipartite graph with sets of m and n vertices.

Bipartite graph: A graph for which it is possible to divide the vertices into two disjoint sets such that there are no edges between any two vertices in the same set.

Complete bipartite graph: A bipartite graph for which every vertex in the first set is adjacent to every vertex in the second set.

5. How many edges does $K_{7,4}$ have?

6. For which values of m and n is $K_{m,n}$ planar?