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**Hurlee Gonchigdanzan\*** (hurlee@uwsp.edu), Department of Mathematical Sciences, University of Wisconsin, Stevens Point, WI 54482. *How much does a Hamiltonian cycle weigh?* Preliminary report.

A Hamiltonian cycle in a graph is a path in the graph which visits each vertex exactly once and returns to the starting vertex. Let  $K_n$  be a weighted complete graph with  $n$  vertices. The weight of an edge is defined as the square of the distance between two end points of the edge. The weight of a path is the sum of the weights of all edges in the path. We establish a precise estimate for the weight of a Hamiltonian cycle in  $K_4$  and  $K_5$ . (Received August 31, 2009)