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Dan Archdeacon* (dan.archdeacon@uvm.edu), Department of Mathematics and Statistics, University of Vermont, Burlington, VT 05405. *Geometric Drawings of Graphs Using Few Edge Lengths*. Preliminary report.

A geometric drawing of a graph represents the graph in the plane with all edges as straight line segments. These drawings come in two flavors: edges can cross, or they cannot. The latter flavor is called an embedding.

One measure of the niceness of a geometric drawing of a graph is the number of different edge-lengths used to represent its edges. Can every graph be represented (with crossings) using only integer-length edges? Does every planar graph have a subdivision that can be embedded using only unit-length edges? What is the fewest number of edge-lengths needed to represent (with crossings) the complete graph?

In this talk we survey these and other results in this area. Both flavors of drawings will be sampled. (Received September 21, 2010)