957-26-9 **John Coffey*** (coffey@purdue.calumet.edu), 2200 169th Street, Hammond, IN 46323-2094, and **Robert Merkovsky** (merk@calumet.purdue.edu), 2200 169th Street, Hammond, IN 46323-2094.

The Construction of Major and Minor Functions Using Gauges and Riemann Sums.

A necessary and sufficient condition for the existence of major and minor functions for a measurable function is given, together with explicit formulas for certain major and minor functions in terms of gauges and Riemann sums. This condition is then used to derive a simple and constructive formula for the upper and lower Perron integrals. When the upper and lower Perron integrals are finite, it is shown that they coincide with the upper and lower Henstock integrals. A necessary and sufficient condition for the existence of the Denjoy-Perron-Kurzweil-Henstock integral is given. An example is produced demonstrating that a function having major and minor functions need not be Denjoy-Perron-Kurzweil-Henstock integrable. (Received March 02, 2000)