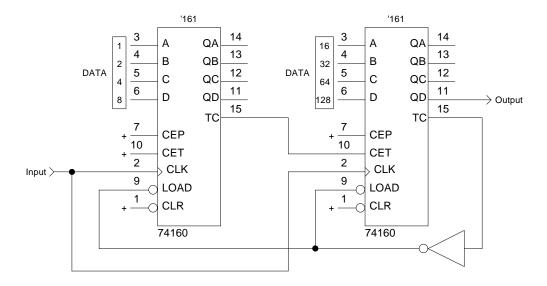# Divide by N Using the '161 Counter

Here is a simple circuit for obtaining divide-by-N from '161s. The technique will work for one, two, or more dividers to obtain the desired N value. One counter handles N values up to 16, two counters divide by N values up to 256, etc. The terminal count, TC, of the last divider is inverted and used to preset all of the counters. The other TC pins are connected to the following counter's CET input. The CET input of the first divider is connected to logic 1 (+VCC).

The data inputs are programmed for the desired division factor, N, using the equation:

$$DATA = 256 - N.$$

with the value of each bit as shown in the boxes. For example, to divide by 183:

$$DATA = 256 - 183 = 73$$

And the binary representation of 73 is 01001001.

pin 6 of second '161 ╱   ╲ **pin 3 of first '161**