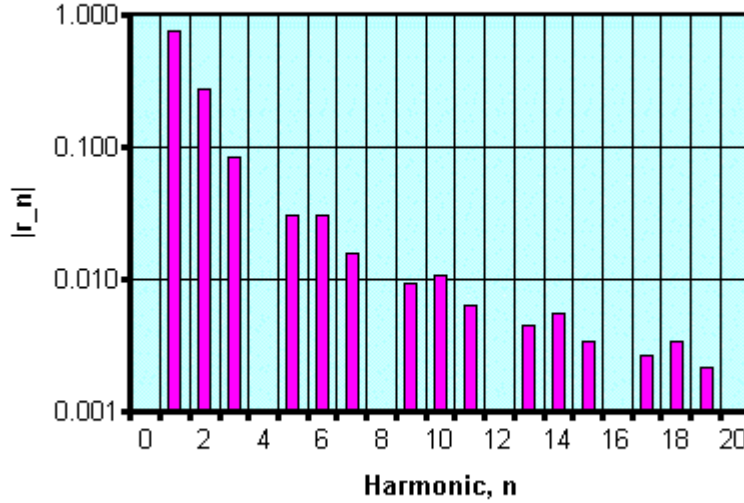## Harmonic Content of a Sawtooth Wave

We can compare e.g. the relative strength of the third harmonic to the fundamental for the bipolar sawtooth wave to that for the third harmonic associated with the bipolar triangle wave. For the sawtooth wave, $|r_3|/|r_1| = 11.1\%$, while for the triangle wave, we also have $|r_3|/|r_1| = 11.1\%$ - i.e. the same value of harmonic amplitude ratio! In fact the ratios $|r_n|/|r_1|$ for _all_ odd-n harmonics are _identical_ for triangle vs. sawtooth waves!

The phase angles, δ_n of the harmonics associated with the bipolar sawtooth wave are shown in the figure below for the first 20 harmonics.

Harmonic Content of a Sawtooth Wave

12