

### Problem 6-19

$$I = \sqrt{I_1^2 + \sum_{h=5} I_h^2}$$

$$\text{Ratio} = I_1 / I$$

$$\% \text{ THD}_i = \frac{\sqrt{I^2 - I_1^2}}{I_1} \times 100$$

$$\therefore (\text{Ratio})_{\text{typical}} = 0.98$$

$$(\text{THD})_{\text{typical}} = 20.5\%$$

$$(\text{Ratio})_{\text{ideal}} = 0.96$$

$$(\text{THD})_{\text{ideal}} = 28.6\% \text{ based on up to 25th harmonic.}$$