$$(m_1 - m_2) = 2.5 * \log_{10} \frac{I_2}{I_1}$$

$$\frac{I_2}{I_1} = 10^{0.4(m_1 - m_2)}$$

$$(m - M) = 5 \log_{10} d - 5$$

$$I_1 \neq 2 I_2$$

$$I_1 \sim 10 \, I_2$$