**Example:** The intensity of the light coming from one of the slits in a Young's double slit experiment is double the intensity from the other slit. Find the ratio of the maximum intensity to the minimum intensity in the interference fringe pattern observed.

**Solution:** $\frac{I_{max}}{I_{min}} = \left[\frac{\sqrt{I_1}+\sqrt{I_2}}{\sqrt{I_1}-\sqrt{I_2}}\right]^2 \quad As \;\; I_1 = 2I_2$

$$\Rightarrow \frac{I_{max}}{I_{min}} = \left[\frac{\sqrt{2}+1}{\sqrt{2}-1}\right]^2$$

**Example:** The width of one of the two slits in a Young's double slit experiment is double of the other slit. Assuming that the amplitude of the light coming from a slit is proportional to the slit width, find the ratio of the maximum to minimum intensity in the interference pattern.

**Solution:** Since the width of one of the two slits in a YDSE is double of the other slit and the amplitude of the light coming from a slit is proportional to the slit width

$\Rightarrow$ Amplitudes from the slits are $A_1 = A$ and $A_2 = 2A$.