

DERIVATION OF β IN ROARK'S FORMULAS

$$\sigma_B = \frac{(\beta)(P)(b)^2}{(t)^2}$$

$\beta = 0.75$ when $\gamma = \infty$

$$\sigma_B = \frac{M}{S} \Rightarrow \frac{(\frac{1}{8})(P)(w)(b)^2}{(\frac{1}{6})(w)(t)^2}$$

$$\Rightarrow \frac{(\frac{1}{8})(P)(b)^2}{(\frac{1}{6})(t)^2}$$

Note $\frac{(\frac{1}{8})}{(\frac{1}{6})} = 0.75$

$$\therefore \sigma_B = \frac{(0.75)(P)(b)^2}{t^2}$$