

If $\frac{\pi}{4} < \theta_m < \frac{3\pi}{4}$, then

1. $\tan \theta_b \leq \frac{\ell}{h}$
2. $\frac{1}{\tan \theta_m} \leq 1 - \frac{r}{\ell} \frac{1 + \cos \theta_b}{\sin \theta_b}$

If $\frac{3\pi}{4} < \theta_m < \frac{5\pi}{4}$, then

- $\tan \theta_b \leq \frac{\ell}{h}$

