

## Star Images

$$\text{Angular Separation} = 10 \text{ arc sec} = \theta$$

$$\theta_{1/2} = 5 \text{ arc sec} = .00139^\circ$$

$$h' = f \tan \theta_{1/2} \quad f = 1000 \text{ mm}$$

$$h' = .024 \text{ mm}$$

$$\text{Separation} = 2h' = .048 \text{ mm} = \underline{\underline{48 \mu\text{m}}}$$

or

Approximation, since angles are small:

$$\theta = 10 \text{ arc sec} = .00278^\circ = .000048 \text{ rad}$$

$$\text{Separation} = f \theta = .048 \text{ mm} = \underline{\underline{48 \mu\text{m}}}$$

$\theta$  must be in radians