M1/M2 = 3.6; e = 0.0
$M_1/M_2 = 3.6; \ e = 0.4$
Quick Question

Two stars with parallax of 0.1 arcsec are observed to move around a circle centered on a point halfway between them, with a separation of 1 arcsec over a period 10 years. What is the total mass of the two stars?

A. 2 $M_{\text{sun}}$

B. 5 $M_{\text{sun}}$

C. 10 $M_{\text{sun}}$

D. 20 $M_{\text{sun}}$

E. There’s not enough information to answer.
Quick Question

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\[ D = \frac{1}{0.1} = 10 \text{ pc} \Rightarrow a = aD = 1 \times 10 = 10 \text{ AU} \]

\[ M_1 + M_2 = \frac{a^3}{P^2} = \frac{10^3}{10^2} = 10 \, M_{\odot} \]

but COM halfway \( \Rightarrow M_1 = M_2, \)

thus \( M_1 = M_2 = 5 \, M_{\odot} \)
Continuum Spectrum
Emission Line Spectrum
Absorption Line Spectrum

Star
Photosphere: "Continuum Source"

Outer layers are Cooler -- Absorb Photons

See this

Hot Gas
Cold Gas

O 50000K
B 20000K
A 10000K
F 7500K
G 6000K
K 4000K
M 3500K