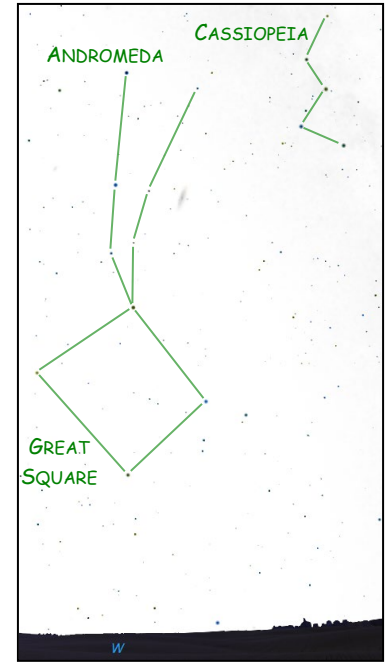


RISING, SETTING, AND TIME IN THE SKY

The stick figures of the Great Square of Pegasus, Andromeda and Cassiopea at 8 pm on 1/24/25 are shown. In the table,

- a)⁵ look up the Other Name in the Field Guide.
- b)⁵ Label the stars in the table on the diagram with these.
- c)²⁰ Calculate the indicated quantities for each star at **declination δ** for an observer at **latitude λ** :



RISING AND SETTING POSITIONS

$$A_{\text{rise}} = \cos^{-1}\left(\frac{\sin \delta}{\cos \lambda}\right) \text{ degrees} \quad A_{\text{set}} = 360 - A_{\text{rise}} \text{ degrees}$$

MAXIMUM ALTITUDE (AT TRANSIT)

$$\text{Alt}_{\text{Max}} = \text{Alt}_{\text{CE}} + \delta = (90 - \lambda) + \delta \text{ degrees}$$

TIME ABOVE THE HORIZON

$$\Delta t = \frac{2}{15} \cos^{-1}(-\tan \lambda \tan \delta) \text{ hours}$$

STAR	OTHER NAME	α	δ		CANTON, NY ($\lambda = 44^{\circ}36' = 44.6^{\circ}$)			
			deg min	degrees	A_{RISE} (deg)	A_{SET} (deg)	MAX ALT.	Δt (h)
α And		00 ^h 08 ^m	29° 05'					
β And		01 ^h 10 ^m	35° 37'					
α Peg		23 ^h 05 ^m	15° 12'					
β Peg		23 ^h 04 ^m	28° 05'					
γ Peg		00 ^h 13 ^m	15° 11'					
β Cas	Caph	00 ^h 09 ^m	59° 09'	59.2°	Circumpolar!		104.6°	24
α Sco	Antares	16 ^h 30 ^m	-26° 26'	-26.4	128.7	231.3	19.0	5.2

d)¹⁰ Show the approximate rising path of each star below (they all rise at an angle of 45° in Canton) (They all rise parallel!)

$\text{Alt} > 90^{\circ}$ means Caph is in the northern sky (north of the zenith)

