

RISING, SETTING, AND TIME IN THE SKY

The stick figures of the Great Square of Pegasus, Andromeda and Cassiopeia at 8 pm on 1/24/24 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

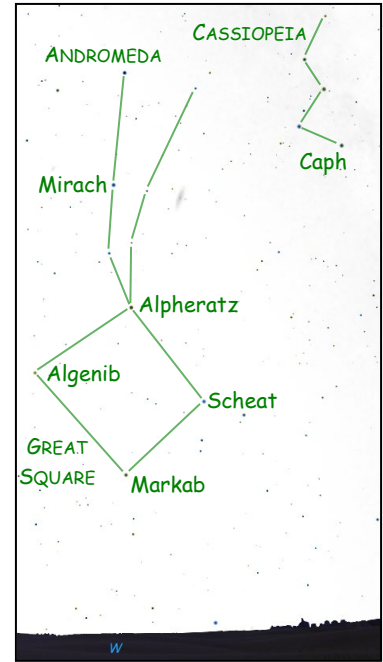
$$A_{\text{rise}} = \cos^{-1} \left(\frac{\sin \delta}{\cos \lambda} \right) \text{ degrees} \quad A_{\text{set}} = 360 - A_{\text{rise}} \text{ degrees}$$

MAXIMUM ALTITUDE (AT TRANSIT)

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

TIME ABOVE THE HORIZON

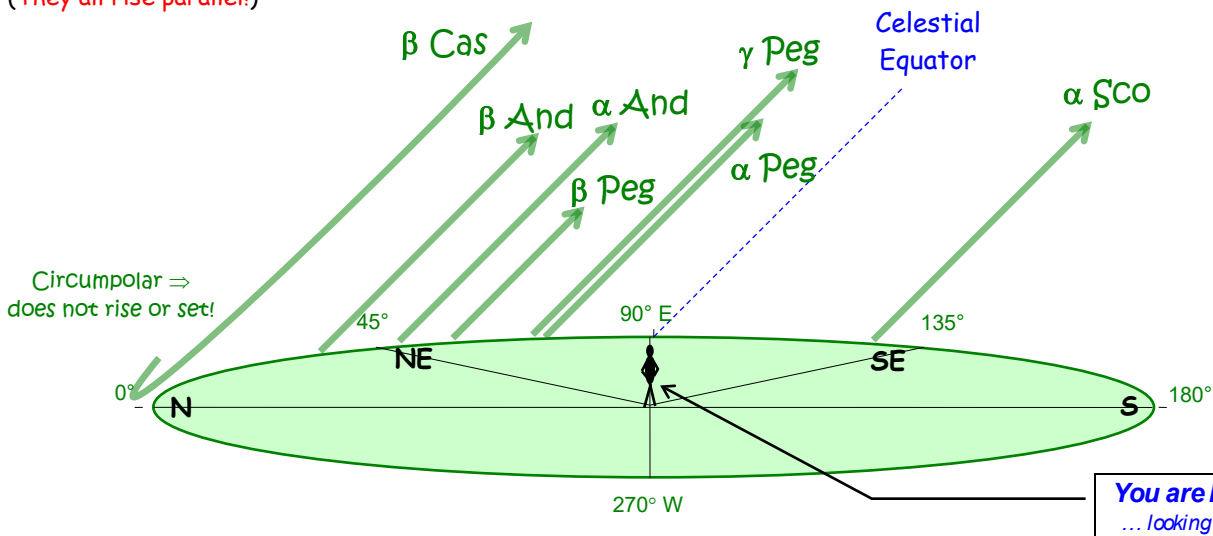
$$\Delta t = \frac{2}{15} \cos^{-1} (-\tan \lambda \tan \delta) \text{ hours}$$



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	Alpheratz	00 ^h 08 ^m	29° 05'	29.1	46.95	313.05	74.5	16.4
β And	Mirach	01 ^h 10 ^m	35° 37'	35.6	35.1	324.9	81.0	18.0
α Peg	Markab	23 ^h 05 ^m	15° 12'	15.2	68.4	291.6	60.0	14.1
β Peg	Scheat	23 ^h 04 ^m	28° 05'	28.1	48.6	311.4	73.5	16.2
γ Peg	Algenib	00 ^h 13 ^m	15° 11'	15.1	68.4	291.6	60.6°	14.1
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!)

Alt > 90° means Caph is in the northern sky (north of the zenith)



You are here ... looking east