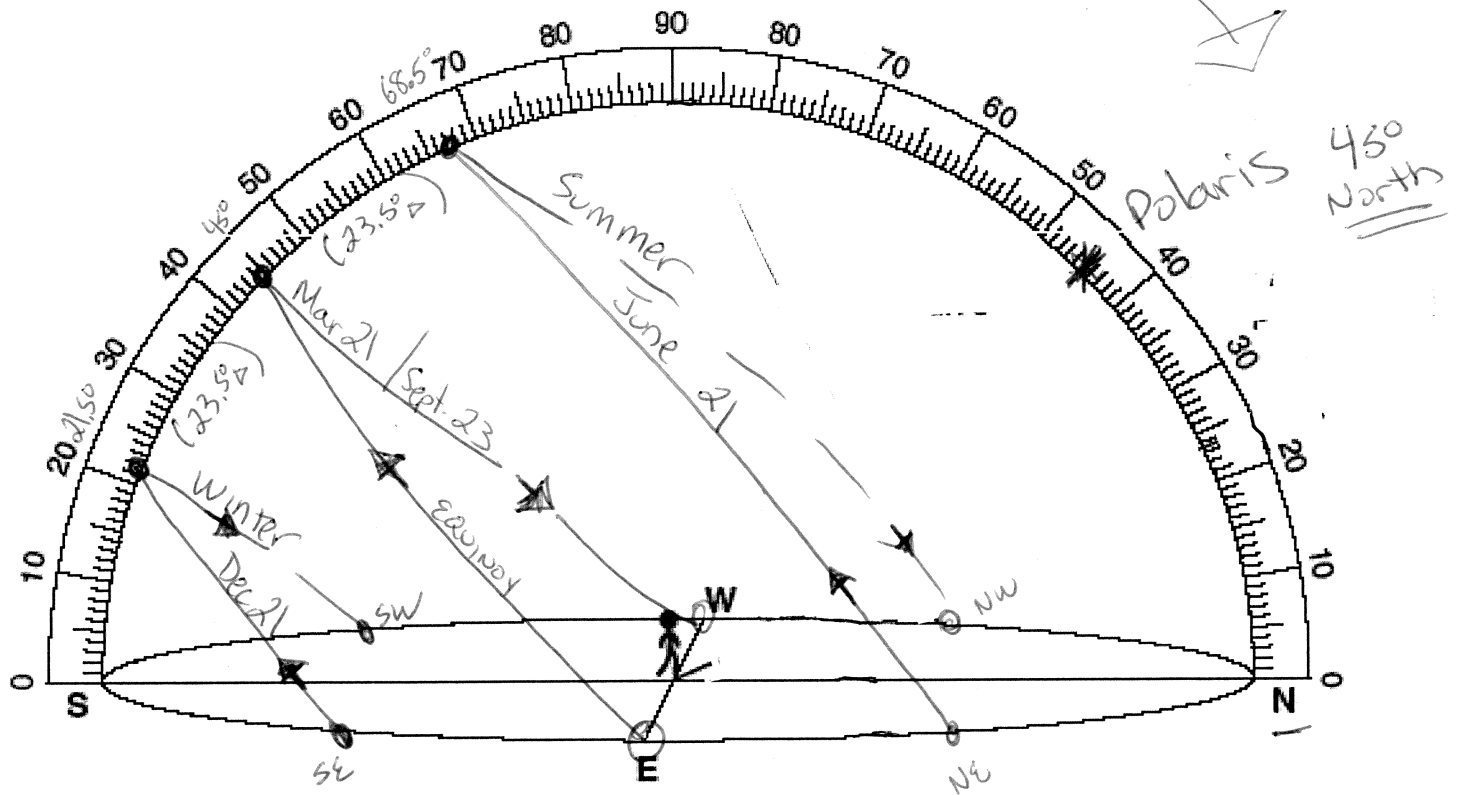


Key

Location = 45° N



1. Draw in the correct location of Polaris  $45^\circ N = \text{Latitude}$
2. Draw the correct path of the sun for the following dates

Summer highest Sun **June 21<sup>st</sup>** (Sun's altitude  $\frac{68.5^\circ}{45^\circ + 23.5}$  . Sun Rises NE . Sets NW)

Winter lowest Sun **December 21<sup>st</sup>** (Sun's altitude  $\frac{21.5^\circ}{45^\circ - 23.5}$  . Sun Rises SE . Sets SW)

EQUINOX **March 23<sup>rd</sup>/Sept 23<sup>rd</sup>** (Sun's altitude  $\frac{45^\circ}{90^\circ - 45^\circ}$  . Sun Rises due East . Sets due West)

3. On which day of the year will the noon time sun cast the shortest shadow? June 21 = short shadow = higher sun
4. Which city in New York is this person located at?

Massena NY ESRT p.3

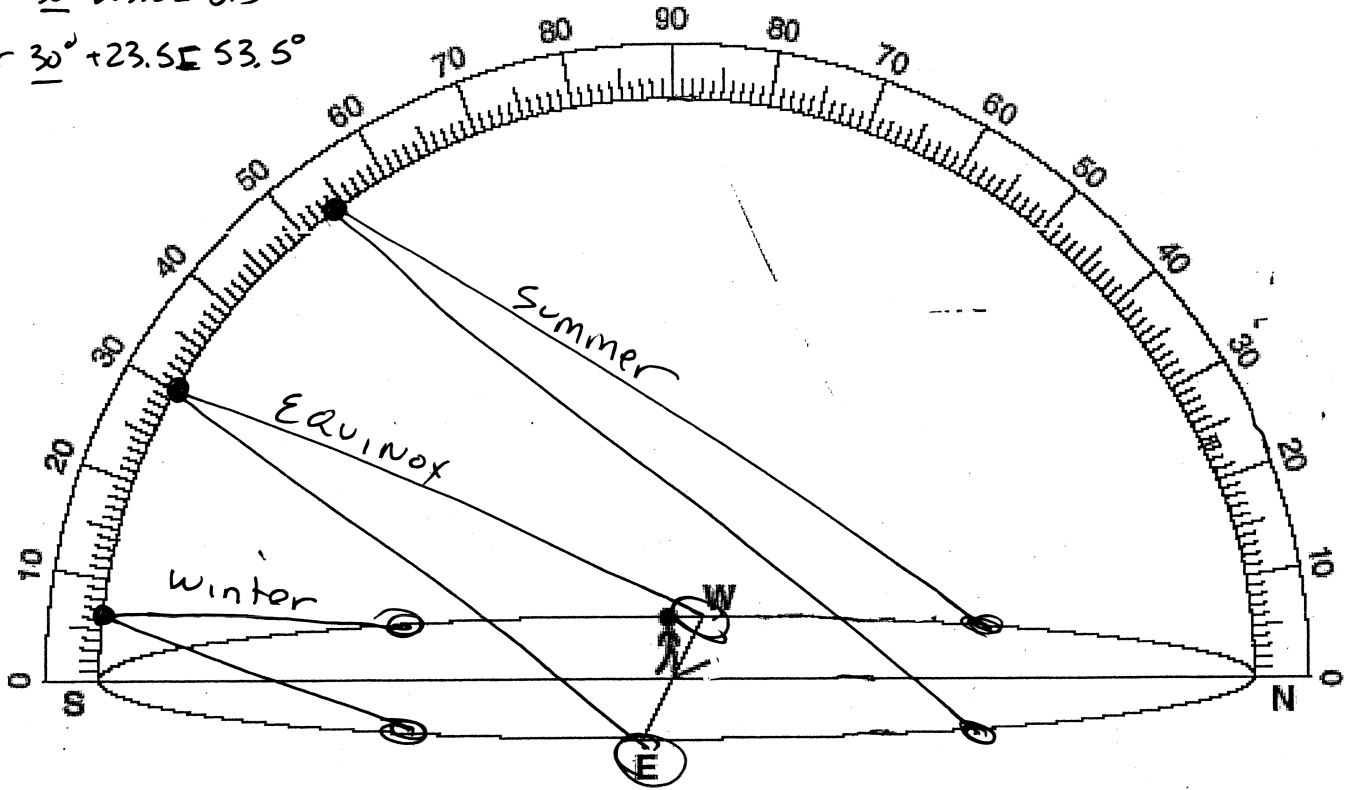
Equinox

$90 - 60 = 30^\circ \text{ sun}$

Location =  $60^\circ \text{N}$

winter  $30 - 23.5 = 6.5$

summer  $30 + 23.5 = 53.5^\circ$



Location =  $30^\circ \text{N}$

Equinox

$90 - 30 = 60^\circ \text{ sun}$

$60 - 23.5 = 36.5^\circ$

$60 + 23.5 = 83.5^\circ$

