TERMS

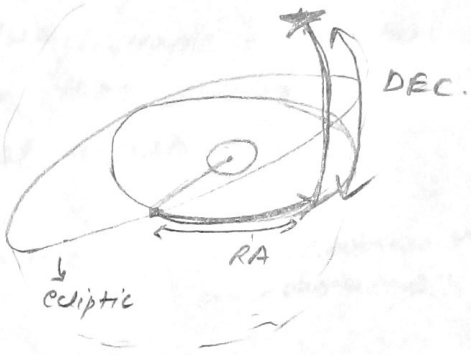
Astrometry — precise measurements of positions and movements of stars & celestial obj.

Photometry — measuring flux or intensity of astronomical obj.

Proper Motion 'μ' — angular change in position of a star across our los.
- arc seconds per year.

↳ observed 'μ' reflects the velocity of a star relative to the Solar System at the time the light was emitted from that star.

Epoch → Julian Epoch J2000.0
(↳ Besselian Epoch)) Jan 1, 2000 at 12:00 TT



Right Ascension.

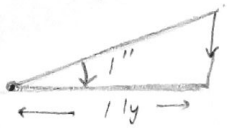
$24\,h$ = full circle = $\frac{2\pi}{\text{rad}}$ = $360°$

$1\,h = \frac{1}{24}$ circle = $15° = \pi/12$ rad.

$1' =$

$1'' = 4.848 \times 10^{-6}$ rad.

$\mu = 1$ arcsec per year at a distance of 1 light year corresponds to a relative transverse speed of 1.145 km/s



$v_t = x/t$ ~ year $= 3.2 \times 10^7$ s

↓ km/s.

$x = r\theta$
$= (1 \text{ light year})(1'')$

↓

= km.

$$= \frac{(9.46 \times 10^{12}\text{ km})(4.848 \times 10^{-6})}{3.2 \times 10^7\text{ s}}$$

~ 1.143 km/s

DOUBT ~~> Galaxies do not move!
Andromeda?
how do we differentiate b/w moving galaxies and far away galaxies?
that wont move