Answer on Question #54951, Physics / Astronomy | Astrophysics

Question:

A star of declination 42∘ 21` N is observed when its hour angle is 8h 16m 42s. If the observer's latitude is 60∘ N, calculate the star's azimuth and altitude at the time of observation.

Solution:

It is often a great help to sketch as accurately as possible a celestial sphere diagram of the problem.

This provides a visual check on deductions about quadrants in which an angle lies. Since P_X = 90 − δ, we see that its value is 47°39'.

We convert the hour angle value of $8^h16^m42^s$ to angular measure by means of table:

$$8^h16^m42^s = 8^h + 16^m + 42^s = 124°10.5'$$

Answer: 124°10.5'