Formula for Celestial

A = Tan Lat / Tan LHA — **A =** — *Named Opposite to Latitude except if LHA between 90 - 270*

B = Tan Dec / Sin LHA — **B =** — *Named the Same as Declination*

C = A +/- B — **C =** — **Named Greater of the Two**

Same Names + / Opposite Names –

Tan Azimuth = 1 / C x Cos Lat — *Named N / S same as C*
Named W if LHA between 0 -180
Named E if LHA between 180 -360

Sin Amplitude = Sin Declination / Cos Latitude — *Named East / West depending on whether sun is rising or setting.*
Named North / South same as Declination

Cos.CZD =(cos. LHA x cos. Lat x cos. Dec) +/- (sin. Lat x sin. Dec)
(+ when Lat & Dec same name. – when Lat & Dec opposite)

When LHA is greater than 180 take from 360 and use that instead.

Three rules for Determining Latitude:

- If latitude and Declination are in the same hemisphere but latitude is greater than Declination:

Latitude = Declination + (90°-Altitude).

- If latitude and declination are in the same hemisphere but declination is greater than latitude:

Latitude = Declination – (90° – Altitude)

- If they are in opposite hemispheres:

Latitude = (90° – Altitude) – Declination.