

If θ is the latitude, in radians the meridional parts are given by

$$\int_{\text{latitude at the equator}}^{\text{tabular latitude}} \sec \theta d\theta.$$

If θ is the latitude, in degrees the meridional parts are given by

$$\int_{\text{latitude at the equator}}^{\text{tabular latitude}} \sec\left(\theta * \frac{\pi}{180}\right) d\theta.$$

This integral evaluates to

$$\ln \left| \tan\left(\frac{\theta}{2} + \frac{\pi}{4}\right) \right|$$

if the tabular latitude θ is given in radians and to

$$60 * \frac{180}{\pi} \ln \left| \tan\left(\frac{\theta}{2} + 45^\circ\right) \right|$$

if the tabular latitude θ is given in degrees.