

The math question is to take an spheroid as defined by WGS84, take a heading and a distance and find a time zone.

Step one is to find the new longitude and latitude based off the old one. For a spherical coordinate system:

$$d\vec{r} = dr\hat{r} + rd\phi\hat{\phi} + r\sin\phi d\theta\hat{\theta}$$

In WGS84, the earth is defined as a reference ellipsoid with parameters a and $1/f$, for the semi-major axis and the inverse flattness. The 'radius' r is defined as:

$$r(\phi) = \frac{a}{\sqrt{1 - (2f - f^2) \sin^2 \phi}}$$