$$\lambda_2 = \lambda_1 - \left(\frac{(\Delta t)(GS)(\sin TC)}{60 \cos L_1}\right) \qquad TC=90°, 270°$$

or DEST Longitude = Departure Longitude – ((Elapsed Time * Ground Speed * sin (True Course)) / (60 * cos (Departure Latitude)))

Otherwise:

$$\lambda_2 = \lambda_1 - \frac{180}{\pi}\left\{(\tan TC)\left[\left(\mathrm{Ln}\tan(45+½L_2)\right)-\left(\mathrm{Ln}\tan(45+½L_1)\right)\right]\right\}$$

or DR Longitude = Departure Longitude – (180 / 3.14159) * (tan (True Course) * Ln (tan (45 + 0.5 * Destination Latitude)) – Ln (tan (45 + 0.5 * Departure Latitude))

NOTE: The flight path may not cross either pole.

For long distances, use formula below:
DR Latitude = 90.0 – acos (sin (– Departure Latitude) * cos (Distance/60.0) + cos (– Departure Latitude) * sin (Distance /60.0) * cos (True Course))
DR Longitude = Departure Longitude +/– acos ((cos (Distance /60.0) –sin (– DR Latitude) * sin (– Departure Latitude)) / (cos (– DR Latitude) * cos (– Departure Latitude)))
NOTE: Distance can be replaced with (Ground Speed * Elapsed Time) where Elapsed Time is in hours

A2.10. Rhumb Line Planning:

Variables:
Δt = Time between positions
C = Rhumb line True Course
D = Rhumb line Distance
π = Pi (»3.14159)

$$C = \tan^{-1}\left[\frac{\pi(\lambda_1-\lambda_2)}{180(\mathrm{Ln}\tan(45+½L_2)-\mathrm{Ln}\tan(45+½L_1))}\right]$$

or True Course = atan((3.14159 * (Departure Longitude – Destination Longitude)) / (180 * Ln (tan (45 + 0.5 * Destination Latitude)) – Ln (tan(45 + 0.5 * Departure Latitude)))

$$D = 60(\lambda_2-\lambda_1)\cos L_1 \qquad C = 0$$

or Distance = 60 * (Destination Longitude – Departure Longitude) * cos (Departure Latitude)

$$D = \frac{60(L_2-L_1)}{\cos C} \qquad C \neq 0$$

or Distance = 60 * (Destination Latitude – Departure Latitude) * cos (Rhumb line True Course)