Great Circle Distance & Initial Course Heading Using Spherical Law of Cosines

Enter data into yellow cells
To Clear User Data Cells
Click On This Box

Departure Coordinates

Lat_1 42 deg. 21.90 min. N

$Long_1$ 71 deg. 0.30 min. W

Destination Coordinates

Lat_2 41 deg. 19.60 min. S

$Long_2$ 174 deg. 48.40 min. E

Use "Nav Bodies" Worksheet to specify Departure Position, Date & Time

Date & Zone Time at Departure Position

2-Dec-17	9:15:00

Spherical Law of Cosines For Great Circle Distance & Initial Course Heading:

$D = \text{acos}(\sin(Lat_1).\sin(Lat_2)+\cos(Lat_1).\cos(Lat_2).\cos(\Delta Long)).R$

$\theta = \text{atan2}(\cos(Lat_1).\sin(Lat_2) - \sin(Lat_1).\cos(Lat_2).\cos(\Delta Long),\ \sin(\Delta Long).\cos(Lat_2))$

Earth Radius (R) = 3437.74677 n. mi.

Initial Course Heading (θ) 247.7 deg. →

Great Circle Distance (D) 7934.80 n. mi.

T	248		
V	19	E	+W -E
M	229		
D	3	W	+W -E
C	232		

If Speed 600.00 kn

ThenTime in Route 13:13:29 hr:min:sec

If Time in Route 13 hr. 13 min. 29 sec.

Then Speed 600.00 kn