Use scale of minutes with VP-OS plotting 0' 50' 40' 30' 20' 10' 0' 50' 40' 30' 20' 10' 0' sheet published by Weems & Plath.

TACKING DOWNWIND

Course to Dest. relative to dead downwind = γ
Course sailed relative to dead downwind = θ
Distance Factor DF = cos(γ)/cos(θ)
Speed on course θ = Sθ
Speed Factor SF = Sθ/Sγ
Time Factor TF = DF/SF
Ideal Course = Course with smallest TF

CHART SCALES AND DISTANCE

Nautical Miles Per Inch = Reciprocal of Chart Scale ÷ 72,900

GREAT CIRCLE CALCULATIONS

Meridian Angle (H) = _____° ___ E/W

My Latitude (L) = _____° ___ N/S

Latitude of destination (d) = _____° ___ N/S

1. tan(d) ÷ cos(H) = tan(W)
2. Ignore the sign of X (i.e. -60 = 60)
   - If H < 90° then then use [+ W] if d has the same name as L. Use [− W] if d has opposite name as L.
   - If H > 90°, use [− W].
   (90° - L) ± W = X
3. If X < 90°, then X = Y.
   If X > 90°, then 180 − X = Y
4. [cos(W) ÷ cos(Y)] * tan(H) = tan(Az)
   Az = ___ N/S _____° ___ E/W
   Use N if destination is north of you.
   Use E if destination is east of you.
5. cos(Az) * tan(Y) = tan(Hc)
6. D = (90° - Hc) × 60

If doing sight reduction, d = declination of celestial object. L = latitude of AP.

If meridian angle > 90°then...
Use alternate data input: 180°- MA = H
Use alternate Step 2: (90° - L) - W = X
Use alternate Step 6: D = (90°+ Hc) * 60

Inches 0 1 2 3 4 5 6 7 8 9 10