

CONVERGENCY OF MERIDIANS

NOTATION:

C = CONVERGENCY IN SECONDS

F = MEAN LATITUDE

$$C = .6501 \times \text{TAN } F \times \text{CHAINS} \times \text{SINE BRG.}$$

$$C = 52.008 \times \text{TAN } F \times \text{MILES} \times \text{SINE BRG.}$$

EXAMPLE:

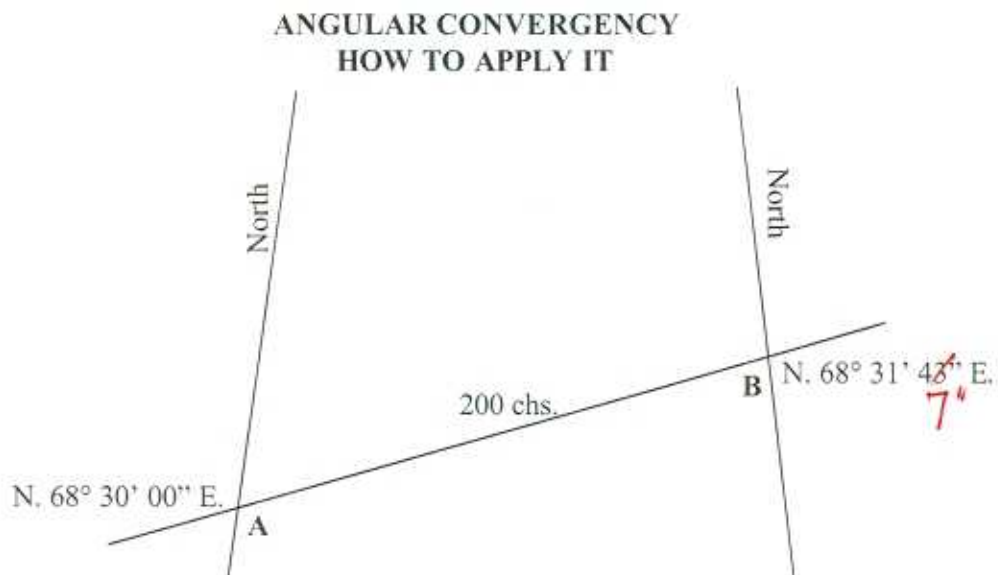
LINE=N. 80° 00' E., 640 CHS. OR 8 MILES

F = 41° 31' N.

$$C = .6501 \times .88473 \times 640 \times .98481 = 362.51''$$

OR

$$C = 52.008 \times .88473 \times 8 \times .98481 = 362.51''$$



Mean Latitude
41 degrees and 30 min.

Example: I have run a straight line (AB) on a beginning bearing of N. 68° 30' 00" E., for a distance of 200 chs. I have computed the angular convergency to be 0° 01' 4~~8~~⁷". What is the bearing of the line at B?

Rule: If the latitude of the line is increasing with its direction, add the correction for convergency.
If the latitude of the line is decreasing with its direction, subtract the correction for convergency.

Therefore: The beginning bearing is N. 68° 30' 00" E. Since the latitude of the course is increasing, I add the convergency: 68° 01' 00" + 0° 01' 4~~8~~⁷" and the bearing of the line at point B becomes N. 68° 31' 4~~8~~⁷" E.

LINEAR CONVERGENCY

The linear Convergency of a township or of meridians is an amount expressed in linear measurement; e.g., miles, chains, links; of the effect due to the meridians converging at the poles.

Bluntly: We are doing plane surveying on a round surface and must make adjustments accordingly.

LINEAR CONVERGENCY OF MERIDIANS

Linear convergency of survey figures may be computed as follows:

- (A) Using BLM STANDARD FIELD TABLES in Table 11 with argument as the approximate mean latitude (see example 1).
- (B) By the formula

$$dm = \frac{m \cdot mF}{a} \quad \tan f \sqrt{(1-e^2) \sin^2 F}$$

(see example 2)

- (C) For fractional parts of a township. (see example 3)
The 1947 Manual, Section 129 states:

"Simple interpolatiion may be made for any intermediate latitude, and the amount of the convergency for a fractional township or other figure may be