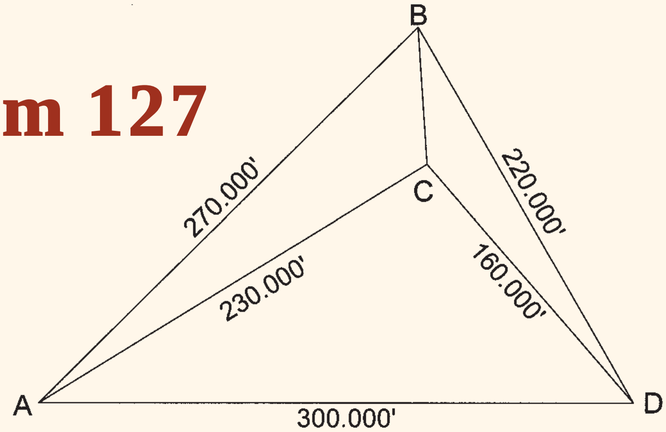
Solution to Problem 127



Solving for angles in the triangles by the Law of Cosines,

Angle B-A-D = 45°01′32.35″
Angle B-D-A = 60°15′01.04″
Angle A-B-D = 74°43′26.61″
Angle C-A-D = 31°47′17.99″
Angle C-D-A = 49°13′20.53″
Angle A-C-D = 98°59′21.48″

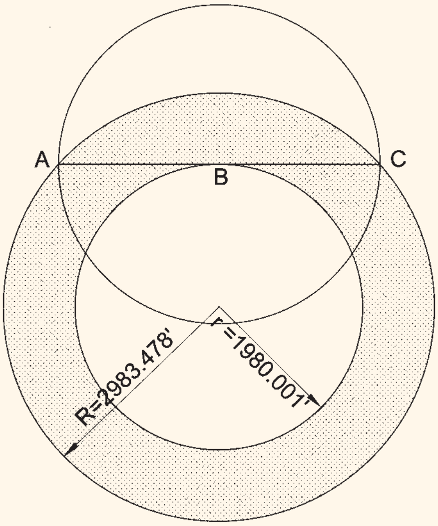
Letting Point A be North = 0 and East = 0, Point D is North = 0, East = 300.000

By distance–distance intersection or by traversing,

Point C is North = 121.16002, East = 195.50000 and
Pont B is North = 191.00429, East = 190.83333

$BC^2 = (191.00429 - 121.16002)^2 + (195.50000 - 190.83333)^2$
$BC^2 = 4878.222052 + 21.777809 = 4899.99986$
BC = 69.9999990, almost an integer too!

Solution to Problem 128



Let P be the radius point of the annulus.

The area of the annulus is $\pi R^2 - \pi r^2 = \pi (R^2 - r^2)$

PB = r and PC =R

$BC^2 = PC^2 - PB^2 = R^2 - r^2$ = radius of circle A-C.

The area of the circle AC is therefore $\pi(R^2 - r^2)$, same as the annulus.

(The numerical values given are for people who like to draw and calculate.)