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## THE INVERSE OF THE INVOLUTE FUNCTION

Given the involute of an angle, there is no simple formula for finding that angle. If you have involute tables, the inverse of the involute can be found by interpolating between known values, if needed. Without the benefit of tables, the pursuit of the angle can be achieved with a calculator, the most practical solution is to guess based on this brief table.

Remember you have involute (Inv  $\theta$ ) you want  $\theta$ .

$\theta$  is the Greek letter Theta often used for a given angle

$\theta$ IN DEGREES	INV. $\theta$
0	0
5	0.00022
10	0.00179
14.5	0.00554
17.5	0.00987
20	0.01490
22.5	0.02151
25	0.02998
30	0.05375
35	0.08934
40	0.14097
45	0.21460
50	0.31909
55	0.46821
60	0.68585

1.  $\text{Inv}(\theta) = \text{Tangent } \theta - (\theta \cdot \pi / 180)$
2. The function makes sense only from a range of  $0^\circ$  up to  $89^\circ$ . You should arrive at  $\theta=140^\circ$  for example.
3. The involute is a steadily increasing function; that is, the higher the angle, the higher the involute and vice versa.