

§ 5 単曲線公式

曲線の関係は交角，半径，切線長，曲線長，正矢，中央縦距及び長弦等の7値の中孰れか二値を知れば次の諸公式によりて他の諸値を求むることを得。

単曲線公式

番号	已知値	未知値	公 式
1	R, I	L	$L = R \left(I \frac{3.1416}{180} \right) = R \cdot I \times 0.0174533$
2	R, C'	δ	$\delta = \frac{1718'.87}{R} C'$
3	I, L	R	$R = \frac{L}{I} \times 57.^\circ 29578$
4	R, I	T	$T = R \tan \frac{I}{2}$
5	"	C	$C = 2R \sin \frac{I}{2}$
6	"	M	$M = R \text{vers} \frac{I}{2} = R \left(1 - \cos \frac{I}{2} \right)$
7	"	E	$E = R \text{exsec} \frac{I}{2} = R \left(\sec \frac{I}{2} - 1 \right)$
8	I, T	R	$R = T \cot \frac{I}{2}$
9	"	E	$E = T \tan \frac{I}{4}$
10	"	C	$C = 2T \cos \frac{I}{2}$
11	"	M	$M = T \cot \frac{I}{2} \text{vers} \frac{I}{2}$
12	I, E	R	$R = \frac{E}{\text{exsec} \frac{I}{2}}$
13	"	T	$T = E \cot \frac{I}{4}$
14	"	C	$C = 2E \frac{\sin I/2}{\text{exsec} I/2} = 2E \cot \frac{I}{4} \cos \frac{I}{2}$
15	"	M	$M = E \cos \frac{I}{2}$
16	I, C	R	$R = C \sec \frac{I}{2}$
17	"	M	$M = \frac{1}{2} C \tan \frac{I}{4}$
18	"	T	$T = \frac{1}{2} C \sec \frac{I}{2}$
19	"	E	$E = \frac{1}{2} C \frac{\text{exsec} I/2}{\sin I/2} = \frac{1}{2} C \tan \frac{I}{4} \sec \frac{I}{2}$
20	I, M	R	$R = \frac{M}{\text{vers} I/2}$
21	"	C	$C = 2M \cot \frac{I}{4}$
22	"	T	$T = M \frac{\tan I/2}{\text{vers} I/2}$
23	"	E	$E = M \sec \frac{I}{2}$
24	R, T	I	$\tan \frac{I}{2} = \frac{T}{R}$
25	R, C	I	$\sin \frac{I}{2} = \frac{C}{2R}$