Trigonometric Functions and Inverses

Sine, cosine, tangent, secant, cosecant and cotangent of an angle, and the inverse sine, cosine and tangent of a ratio, in degrees or radians.

Method: Circular functions

Input parameters

Unit system: SI

Parameter	Value	Unit
Angle	35.000	°
Ratio for the inverse functions	0.60000	

Calculated results

Parameter	Value	Unit
Sine	0.57358	
Cosine	0.81915	
Tangent	0.70021	
Secant	1.2208	
Cosecant	1.7434	
Cotangent	1.4281	
Inverse sine	36.870	°
Inverse cosine	53.130	°
Inverse tangent	30.964	°

Notes for this case

• The angle is reduced to one turn and the six functions follow from sin and cos. Inverses return principal values: arcsin in −90°…90°, arccos in 0°…180° and arctan in −90°…90°; other solutions follow from symmetry (θ and 180° − θ share a sine). For a bearing or direction from two coordinates use atan2 (see the coordinate calculators), which knows the quadrant.

Formula and method

$$\tan\theta = \frac{\sin\theta}{\cos\theta},\ \sec\theta = \frac{1}{\cos\theta},\ \csc\theta = \frac{1}{\sin\theta},\ \cot\theta = \frac{\cos\theta}{\sin\theta}$$

Variables

θ	Angle	rad
u	Ratio for the inverse functions	-
$\sin\theta$	Sine	-
$\cos\theta$	Cosine	-
$\tan\theta$	Tangent	-
$\sec\theta$	Secant	-
$\csc\theta$	Cosecant	-
$\cot\theta$	Cotangent	-
$\arcsin u$	Inverse sine	rad
$\arccos u$	Inverse cosine	rad
$\arctan u$	Inverse tangent	rad

Method and standards

Trigonometry.

Assumptions and limits

- Real angles; principal values for inverses.

References

Circular functions

Report details

Report reference	FCC-BV58-NAS3 (the same inputs always give the same reference)
Generated	23 November 2026, 18:08 UTC
Calculator	Trigonometric Functions and Inverses
Method last reviewed	17 November 2026
Software release	FireCAD Calc, release of 22 November 2026
Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/general/geometry/trigonometric-functions

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.