Important Trigonometry Ratios, Reciprocal and Pythagorean Identities Formulas PDF

Formulas
Examples
with Units

List of 24
Important Trigonometry Ratios, Reciprocal and Pythagorean Identities Formulas

1) Pythagorean Identities Formulas

1.1) Cos A given Sin A Formula

Evaluate Formula

Formula

$$\cos A = \sqrt{1 - (\sin A)^2}$$

Example

$$0.9404 = \sqrt{1 - (0.34)^2}$$

1.2) Cosec A given Cot A Formula

Evaluate Formula

Formula

$$\operatorname{cosec} A = \sqrt{1 + (\cot A)^2}$$

Example

$$2.9262 = \sqrt{1 + (2.75)^2}$$

1.3) Cot A given Cosec A Formula

Evaluate Formula

Formula

$$\cot A = \sqrt{(\operatorname{cosec} A)^2 - 1}$$

Example

$$2.7434 = \sqrt{(2.92)^2 - 1}$$

1.4) Sec A given Tan A Formula

Evaluate Formula

Formula

$$\sec A = \sqrt{1 + (\tan A)^2}$$

Example

$$1.0628 = \sqrt{1 + (0.36)^2}$$

1.5) Sin A given Cos A Formula

Evaluate Formula

Formula

$$\sin A = \sqrt{1 - (\cos A)^2}$$

Example

$$0.3412 = \sqrt{1 - (0.94)^2}$$

1.6) Tan A given Sec A Formula

Evaluate Formula

Formula

$$\tan A = \sqrt{(\sec A)^2 - 1}$$

Example

$$0.3516 = \sqrt{(1.06)^2 - 1}$$

2) Reciprocal Identities Formulas

2.1) Cos A given Sec A Formula

Evaluate Formula

Formula

$$\cos A = \frac{1}{\sec A}$$

Example

$$0.9434 = \frac{1}{1.06}$$

2.2) Cosec A given Sin A Formula

Evaluate Formula

Formula

$$\operatorname{cosec} A = \frac{1}{\sin A}$$

Example

$$2.9412 = \frac{1}{0.34}$$

2.3) Cot A given Tan A Formula

Evaluate Formula

Formula

$$\cot A = \frac{1}{\tan A}$$

Example

$$2.7778 = \frac{1}{0.36}$$

2.4) Sec A given Cos A Formula

Evaluate Formula

Formula

$$\sec A = \frac{1}{\cos A}$$

Example

$$1.0638 = \frac{1}{0.94}$$

2.5) Sin A given Cosec A Formula

Evaluate Formula

Formula

$$\sin A = \frac{1}{\operatorname{cosec} A}$$

Example

$$0.3425 = \frac{1}{2.92}$$

2.6) Tan A given Cot A Formula

Evaluate Formula

Formula

$$\tan A = \frac{1}{\cot A}$$

Example

$$0.3636 = \frac{1}{2.75}$$

3) Trigonometry Ratios Formulas

3.1) Adjacent Side of Angle Alpha given Cos Alpha Formula

Evaluate Formula

Formula

$$S_{Adjacent} = S_{Hypotenuse} \cdot \cos(\alpha)$$

Example with Units

$$3.0091\,\text{m} = 5\,\text{m} \cdot \cos(53^\circ)$$

3.2) Adjacent Side of Angle Alpha given Tan Alpha Formula

Evaluate Formula

Formula

$$S_{Adjacent} = \frac{S_{Opposite}}{\tan(\alpha)}$$

Example with Units

$$3.0142\,\text{m} = \frac{4\,\text{m}}{\tan(53°)}$$

3.3) Cos Alpha Formula

Evaluate Formula

Formula

$$\cos\alpha = \frac{S_{Adjacent}}{S_{Hypotenuse}}$$

Example with Units

$$0.6 = \frac{3\,\text{m}}{5\,\text{m}}$$

3.4) Cosec Alpha Formula

Evaluate Formula

Formula

$$\operatorname{cosec}\alpha = \frac{S_{Hypotenuse}}{S_{Opposite}}$$

Example with Units

$$1.25 = \frac{5\,\text{m}}{4\,\text{m}}$$

3.5) Cot Alpha Formula

Evaluate Formula

Formula

$$\cot\alpha = \frac{S_{Adjacent}}{S_{Opposite}}$$

Example with Units

$$0.75 = \frac{3\,\text{m}}{4\,\text{m}}$$

3.6) Hypotenuse of Right Angle Triangle given Cos Alpha Formula

Evaluate Formula

Formula

$$S_{Hypotenuse} = \frac{S_{Adjacent}}{\cos(\alpha)}$$

Example with Units

$$4.9849\,\text{m} = \frac{3\,\text{m}}{\cos(53°)}$$

3.7) Hypotenuse of Right Angle Triangle given Sin Alpha Formula

Evaluate Formula

Formula

$$S_{Hypotenuse} = \frac{S_{Opposite}}{\sin(\alpha)}$$

Example with Units

$$5.0085\,\text{m} = \frac{4\,\text{m}}{\sin(53°)}$$

3.8) Opposite Side of Angle Alpha given Sin Alpha Formula

Evaluate Formula

Formula

$$S_{Opposite} = S_{Hypotenuse} \cdot \sin(\alpha)$$

Example with Units

$$3.9932\,\text{m} = 5\,\text{m} \cdot \sin(53°)$$

3.9) Opposite Side of Angle Alpha given Tan Alpha Formula

Evaluate Formula

Formula

$$S_{Opposite} = S_{Adjacent} \cdot \tan(\alpha)$$

Example with Units

$$3.9811\,\text{m} = 3\,\text{m} \cdot \tan(53°)$$

3.10) Sec Alpha Formula

Evaluate Formula

Formula

$$\sec \alpha = \frac{S_{Hypotenuse}}{S_{Adjacent}}$$

Example with Units

$$1.6667 = \frac{5\,\text{m}}{3\,\text{m}}$$

3.11) Sin Alpha Formula

Evaluate Formula

Formula

$$\sin \alpha = \frac{S_{Opposite}}{S_{Hypotenuse}}$$

Example with Units

$$0.8 = \frac{4\,\text{m}}{5\,\text{m}}$$

3.12) Tan Alpha Formula

Evaluate Formula

Formula

$$\tan \alpha = \frac{S_{Opposite}}{S_{Adjacent}}$$

Example with Units

$$1.3333 = \frac{4\,\text{m}}{3\,\text{m}}$$

Variables used in list of Trigonometry Ratios, Reciprocal and Pythagorean Identities Formulas above

- **cos A** Cos A
- **cos α** Cos Alpha
- **cosec A** Cosec A
- **cosec α** Cosec Alpha
- **cot A** Cot A
- **cot α** Cot Alpha
- $S_{Adjacent}$ Adjacent Side of Angle Alpha *(Meter)*
- $S_{Hypotenuse}$ Hypotenuse Side *(Meter)*
- $S_{Opposite}$ Opposite Side of Angle Alpha *(Meter)*
- **sec A** Sec A
- **sec α** Sec Alpha
- **sin A** Sin A
- **sin α** Sin Alpha
- **tan A** Tan A
- **tan α** Tan Alpha
- **α** Angle Alpha of Trigonometry *(Degree)*

Constants, Functions, Measurements used in list of Trigonometry Ratios, Reciprocal and Pythagorean Identities Formulas above

- Functions: **cos**, cos(Angle)
  Cosine of an angle is the ratio of the side adjacent to the angle to the hypotenuse of the triangle.
- Functions: **sin**, sin(Angle)
  Sine is a trigonometric function that describes the ratio of the length of the opposite side of a right triangle to the length of the hypotenuse.
- Functions: **sqrt**, sqrt(Number)
  A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.
- Functions: **tan**, tan(Angle)
  The tangent of an angle is a trigonometric ratio of the length of the side opposite an angle to the length of the side adjacent to an angle in a right triangle.
- Measurement: **Length** in Meter (m)
  Length Unit Conversion
- Measurement: **Angle** in Degree (°)
  Angle Unit Conversion

Download other Important Trigonometry PDFs

- Important Negative, Half, Double and Triple Angle Trigonometry Identities Formulas
- Important Periodicity or Cofunction Identities Formulas
- Important Product to Sum, Sum to Product, Sum & Difference Trigonometry Identities Formulas
- Important Trigonometry Ratios, Reciprocal and Pythagorean Identities Formulas

Try our Unique Visual Calculators

- Percentage decrease
- HCF of three numbers
- Multiply fraction

Please SHARE this PDF with someone who needs it!

This PDF can be downloaded in these languages

English Spanish French German Russian Italian Portuguese Polish Dutch

7/9/2024 | 4:57:40 AM UTC