

Important Negative, Half, Double and Triple Angle Trigonometry Identities Formulas PDF



Formulas
Examples
with Units

List of 24

Important Negative, Half, Double and Triple Angle Trigonometry Identities Formulas

1) Double Angle Trigonometry Identities Formulas

1.1) Cos 2A Formula

Formula

$$\cos 2A = \cos^2 A - \sin^2 A$$

Example

$$0.768 = 0.94^2 - 0.34^2$$

Evaluate Formula

1.2) Cos 2A given Cos A Formula

Formula

$$\cos 2A = (2 \cdot \cos^2 A) - 1$$

Example

$$0.7672 = (2 \cdot 0.94^2) - 1$$

Evaluate Formula

1.3) Cos 2A given Sin A Formula

Formula

$$\cos 2A = 1 - (2 \cdot \sin^2 A)$$

Example

$$0.7688 = 1 - (2 \cdot 0.34^2)$$

Evaluate Formula

1.4) Cos 2A given Tan A Formula

Formula

$$\cos 2A = \frac{1 - \tan^2 A}{1 + \tan^2 A}$$

Example

$$0.7705 = \frac{1 - 0.36^2}{1 + 0.36^2}$$

Evaluate Formula

1.5) Cosec 2A Formula

Formula

$$\operatorname{cosec} 2A = \frac{\sec A \cdot \operatorname{cosec} A}{2}$$

Example

$$1.5476 = \frac{1.06 \cdot 2.92}{2}$$

Evaluate Formula

1.6) Cot 2A Formula

Formula

$$\cot 2A = \frac{\cot^2 A - 1}{2 \cdot \cot A}$$

Example

$$1.1932 = \frac{2.75^2 - 1}{2 \cdot 2.75}$$

Evaluate Formula



1.7) Sec 2A Formula

Formula

$$\sec 2A = \frac{\sec A^2}{2 - \sec A^2}$$

Example

$$1.2821 = \frac{1.06^2}{2 - 1.06^2}$$

Evaluate Formula 

1.8) Sin 2A Formula

Formula

$$\sin 2A = 2 \cdot \sin A \cdot \cos A$$

Example

$$0.6392 = 2 \cdot 0.34 \cdot 0.94$$

Evaluate Formula 

1.9) Sin 2A given Tan A Formula

Formula

$$\sin 2A = \frac{2 \cdot \tan A}{1 + \tan A^2}$$

Example

$$0.6374 = \frac{2 \cdot 0.36}{1 + 0.36^2}$$

Evaluate Formula 

1.10) Tan 2A Formula

Formula

$$\tan 2A = \frac{2 \cdot \tan A}{1 - \tan A^2}$$

Example

$$0.8272 = \frac{2 \cdot 0.36}{1 - 0.36^2}$$

Evaluate Formula 

2) Half Angle Trigonometry Identities Formulas

2.1) Cos (A/2) Formula

Formula

$$\cos(A/2) = \sqrt{\frac{1 + \cos A}{2}}$$

Example

$$0.9849 = \sqrt{\frac{1 + 0.94}{2}}$$

Evaluate Formula 

2.2) Sin (A/2) Formula

Formula

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

Example

$$0.1732 = \sqrt{\frac{1 - 0.94}{2}}$$

Evaluate Formula 

2.3) Tan (A/2) Formula

Formula

$$\tan(A/2) = \sqrt{\frac{1 - \cos A}{1 + \cos A}}$$

Example

$$0.1759 = \sqrt{\frac{1 - 0.94}{1 + 0.94}}$$

Evaluate Formula 



2.4) Tan (A/2) given Sin A and Cos A Formula

Formula

$$\tan_{(A/2)} = \frac{1 - \cos A}{\sin A}$$

Example

$$0.1765 = \frac{1 - 0.94}{0.34}$$

Evaluate Formula 

3) Negative Angle Identities Formulas

3.1) Cos (-A) Formula

Formula

$$\cos_{(-A)} = 1 \cdot \cos A$$

Example

$$0.94 = 1 \cdot 0.94$$

Evaluate Formula 

3.2) Cosec (-A) Formula

Formula

$$\operatorname{cosec}_{(-A)} = (- \operatorname{cosec} A)$$

Example

$$-2.92 = (- 2.92)$$

Evaluate Formula 

3.3) Cot (-A) Formula

Formula

$$\cot_{(-A)} = (- \cot A)$$

Example

$$-2.75 = (- 2.75)$$

Evaluate Formula 

3.4) Sec (-A) Formula

Formula

$$\sec_{(-A)} = 1 \cdot \sec A$$

Example

$$1.06 = 1 \cdot 1.06$$

Evaluate Formula 

3.5) Sin (-A) Formula

Formula

$$\sin_{(-A)} = (- \sin A)$$

Example

$$-0.34 = (- 0.34)$$

Evaluate Formula 

3.6) Tan (-A) Formula

Formula

$$\tan_{(-A)} = (- \tan A)$$

Example

$$-0.36 = (- 0.36)$$

Evaluate Formula 

4) Triple Angle Trigonometry Identities Formulas

4.1) Cos 3A Formula

Formula

$$\cos 3A = (4 \cdot \cos A^3) - (3 \cdot \cos A)$$

Example

$$0.5023 = (4 \cdot 0.94^3) - (3 \cdot 0.94)$$

Evaluate Formula 



4.2) Cot 3A Formula

Formula

$$\cot 3A = \frac{3 \cdot \cot A - \cot A^3}{1 - 3 \cdot \cot A^2}$$

Example

$$0.5785 = \frac{3 \cdot 2.75 - 2.75^3}{1 - 3 \cdot 2.75^2}$$

Evaluate Formula 

4.3) Sin 3A Formula

Formula

$$\sin 3A = (3 \cdot \sin A) - (4 \cdot \sin A^3)$$

Example

$$0.8628 = (3 \cdot 0.34) - (4 \cdot 0.34^3)$$

Evaluate Formula 

4.4) Tan 3A Formula

Formula

$$\tan 3A = \frac{(3 \cdot \tan A) - \tan A^3}{1 - (3 \cdot \tan A^2)}$$

Example

$$1.6907 = \frac{(3 \cdot 0.36) - 0.36^3}{1 - (3 \cdot 0.36^2)}$$

Evaluate Formula 



Variables used in list of Negative, Half, Double and Triple Angle Trigonometry Identities Formulas above

- **cos 2A** Cos 2A
- **cos 3A** Cos 3A
- **cos A** Cos A
- **cos(-A)** Cos -A
- **cos(A/2)** Cos (A/2)
- **cosec 2A** Cosec 2A
- **cosec A** Cosec A
- **cosec(-A)** Cosec -A
- **cot 2A** Cot 2A
- **cot 3A** Cot 3A
- **cot A** Cot A
- **cot(-A)** Cot -A
- **sec 2A** Sec 2A
- **sec A** Sec A
- **sec(-A)** Sec -A
- **sin 2A** Sin 2A
- **sin 3A** Sin 3A
- **sin A** Sin A
- **sin(-A)** Sin -A
- **sin(A/2)** Sin (A/2)
- **tan 2A** Tan 2A
- **tan 3A** Tan 3A
- **tan A** Tan A
- **tan(-A)** Tan -A
- **tan(A/2)** Tan (A/2)

Constants, Functions, Measurements used in list of Negative, Half, Double and Triple Angle Trigonometry Identities Formulas above

- **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.



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