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Negative, Half, Double and Triple Angle Trigonometry Identities Formulas

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List of 24 Negative, Half, Double and Triple Angle Trigonometry Identities Formulas

Negative, Half, Double and Triple Angle Trigonometry Identities

Double Angle Trigonometry Identities

1) Cos 2A

$$\text{fx } \cos 2A = \cos^2 A - \sin^2 A$$

[Open Calculator !\[\]\(de95854c7ee024cfadc48187bbb781b2_img.jpg\)](#)

$$\text{ex } 0.768 = (0.94)^2 - (0.34)^2$$

2) Cos 2A given Cos A

$$\text{fx } \cos 2A = (2 \cdot \cos^2 A) - 1$$

[Open Calculator !\[\]\(6a9b39b98eb945faa14c645ec99e4eaa_img.jpg\)](#)

$$\text{ex } 0.7672 = (2 \cdot (0.94)^2) - 1$$

3) Cos 2A given Sin A

$$\text{fx } \cos 2A = 1 - (2 \cdot \sin^2 A)$$

[Open Calculator !\[\]\(f1c5da15572e3e09d343161be98f508d_img.jpg\)](#)

$$\text{ex } 0.7688 = 1 - (2 \cdot (0.34)^2)$$



4) Cos 2A given Tan A

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

Open Calculator 

$$\text{ex } 0.770538 = \frac{1 - (0.36)^2}{1 + (0.36)^2}$$

5) Cosec 2A

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

Open Calculator 

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

6) Cot 2A

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

Open Calculator 

$$\text{ex } 1.193182 = \frac{(2.75)^2 - 1}{2 \cdot 2.75}$$



7) Sec 2A

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

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

$$\text{ex } 1.282063 = \frac{(1.06)^2}{2 - (1.06)^2}$$

8) Sin 2A

$$\text{fx } \sin 2A = 2 \cdot \sin A \cdot \cos A$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2_img.jpg\)](#)

$$\text{ex } 0.6392 = 2 \cdot 0.34 \cdot 0.94$$

9) Sin 2A given Tan A

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

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7_img.jpg\)](#)

$$\text{ex } 0.637394 = \frac{2 \cdot 0.36}{1 + (0.36)^2}$$

10) Tan 2A

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

[Open Calculator !\[\]\(899d8b7697d64725bf017d3296cfcf1b_img.jpg\)](#)

$$\text{ex } 0.827206 = \frac{2 \cdot 0.36}{1 - (0.36)^2}$$



Half Angle Trigonometry Identities

11) Cos (A/2)

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

[Open Calculator !\[\]\(74d4806277d7e73349d8e8c0897931e9_img.jpg\)](#)

$$\text{ex } 0.984886 = \sqrt{\frac{1 + 0.94}{2}}$$

12) Sin (A/2)

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

[Open Calculator !\[\]\(8bba887393ca45b761e5cb49e755e762_img.jpg\)](#)

$$\text{ex } 0.173205 = \sqrt{\frac{1 - 0.94}{2}}$$

13) Tan (A/2)

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

[Open Calculator !\[\]\(0fb13ad0bfa3d86868cdd3883e5665b3_img.jpg\)](#)

$$\text{ex } 0.175863 = \sqrt{\frac{1 - 0.94}{1 + 0.94}}$$



14) Tan (A/2) given Sin A and Cos A

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

Open Calculator 

$$\text{ex } 0.176471 = \frac{1 - 0.94}{0.34}$$

Negative Angle Identities 15) Cos (-A)

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

Open Calculator 

$$\text{ex } 0.94 = 1 \cdot 0.94$$

16) Cosec (-A)

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

Open Calculator 

$$\text{ex } -2.92 = (-2.92)$$

17) Cot (-A)

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

Open Calculator 

$$\text{ex } -2.75 = (-2.75)$$



18) Sec (-A)

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

[Open Calculator !\[\]\(9dfdaff1d86ba3c1f8353b4d1b61b8c5_img.jpg\)](#)

$$\text{ex } 1.06 = 1 \cdot 1.06$$

19) Sin (-A)

$$\text{fx } \sin(-A) = (-\sin A)$$

[Open Calculator !\[\]\(2b376d1a92330ab09dad2665d2f89bf5_img.jpg\)](#)

$$\text{ex } -0.34 = (-0.34)$$

20) Tan (-A)

$$\text{fx } \tan(-A) = (-\tan A)$$

[Open Calculator !\[\]\(c444627dab9fee9a1550c053ffaaaae2_img.jpg\)](#)

$$\text{ex } -0.36 = (-0.36)$$

Triple Angle Trigonometry Identities 21) Cos 3A

$$\text{fx } \cos 3A = (4 \cdot \cos A^3) - (3 \cdot \cos A)$$

[Open Calculator !\[\]\(683dba75afe26e28cd4de5730b776760_img.jpg\)](#)

$$\text{ex } 0.502336 = (4 \cdot (0.94)^3) - (3 \cdot 0.94)$$



22) Cot 3A [Open Calculator](#) 

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

$$\text{ex } 0.57853 = \frac{3 \cdot 2.75 - (2.75)^3}{1 - 3 \cdot (2.75)^2}$$

23) Sin 3A [Open Calculator](#) 

$$\text{fx } \sin 3A = (3 \cdot \sin A) - (4 \cdot \sin A^3)$$

$$\text{ex } 0.862784 = (3 \cdot 0.34) - (4 \cdot (0.34)^3)$$

24) Tan 3A [Open Calculator](#) 

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

$$\text{ex } 1.690681 = \frac{(3 \cdot 0.36) - (0.36)^3}{1 - (3 \cdot (0.36)^2)}$$



Variables Used

- **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

- **Function:** **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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