

C# Math.Acos() – Syntax & Examples

C# Math.Acos() – Examples

In this tutorial, we will learn about the C# Math.Acos() method, and learn how to use this method to find the arc cosine of given double value, with the help of examples.

Acos(Double)

Math.Acos(d) returns the angle whose cosine is the specified number `d`. The angle returned shall be in radians.

If a value greater than 1 or less than -1 is given as argument, Acos() returns `Double.NaN`.

Syntax

The syntax of Acos(d) method is

```
Math.Acos(Double d)
```

where

Parameter	Description	
d	The double value for which we have to find arc cosine.	

Return Value

The method returns value of type double.

Example 1 – Math.Acos(0.5)

In this example, we will find the angle for which cosine value is 0.5. We shall print the result both in radians and in degrees.

We know that $\cos(60 \text{ degrees}) = 0.5$.

C# Program

```
using System;

class Example {
    static void Main(string[] args) {
        Double d = 0.5;

        Double angle = Math.Acos(d);
        Console.WriteLine($"Angle in radians : {angle}");
        Console.WriteLine($"Angle in degrees : {(180 / Math.PI) * angle}");
    }
}
```

Output

```
Angle in radians : 1.0471975511966
Angle in degrees : 60
```

Example 2 – Math.Acos(1.0)

In this example, we will find the angle for which cosine value is 1.0. We know that $\cos(0 \text{ degrees}) = 1.0$.

C# Program

```
using System;

class Example {
    static void Main(string[] args) {
        Double d = 1.0;

        Double angle = Math.Acos(d);
        Console.WriteLine($"Angle in radians : {angle}");
        Console.WriteLine($"Angle in degrees : {(180 / Math.PI) * angle}");
    }
}
```

Output

```
Angle in radians : 0
Angle in degrees : 0
```

Example 3 – Acos(0)

In this example, we will find the angle for which cosine value is 0. We know that $\cos(90 \text{ degrees}) = 0$.

C# Program

```
using System;

class Example {
    static void Main(string[] args) {
        Double d = 0;

        Double angle = Math.Acos(d);
        Console.WriteLine($"Angle in radians : {angle}");
        Console.WriteLine($"Angle in degrees : {(180 / Math.PI) * angle}");
    }
}
```

Output

```
Angle in radians : 1.5707963267949
Angle in degrees : 90
```

Example 4 – Acos(5) – Invalid Argument

In this example, we will find the angle for which cosine value is 5. We know that the range of $\cos(\text{angle})$ is $[-1.0, 1.0]$, and since the given argument is out of range, `Acos()` returns `Double.NaN`.

C# Program

```
using System;

class Example {
    static void Main(string[] args) {
        Double d = 5;

        Double angle = Math.Acos(d);
        Console.WriteLine($"Angle in radians : {angle}");
        Console.WriteLine($"Angle in degrees : {(180 / Math.PI) * angle}");
    }
}
```

Output

```
Angle in radians : NaN
Angle in degrees : NaN
```

Conclusion

In this [C# Tutorial](#), we have learnt the syntax of `C# Math.Acos()` method, and also learnt how to use this method with the help of `C#` example programs.

C# Math

◆ C# Math.Abs()

⇒ C# Math.Acos()

◆ C# Math.Acosh()

◆ C# Math.Asin()

◆ C# Math.Asinh()

◆ C# Math.Atan()

◆ C# Math.Atan2()

◆ C# Math.Atanh()

◆ C# Math.BigMul()

◆ C# Math.BitDecrement()

◆ C# Math.BitIncrement()

◆ C# Math.Cbrt()

◆ C# Math.Ceiling()

◆ C# Math.Clamp()

◆ C# Math.CopySign()

◆ C# Math.Cos()

◆ C# Math.Cosh()

◆ C# Math.DivRem()

◆ C# Math.Exp()

◆ C# Math.Floor()

◆ C# Math.FusedMultiplyAdd()

◆ C# Math.IEEERemainder()

◆ C# Math.ILogB()

◆ C# Math.Log()

◆ C# Math.Log10()

◆ C# Math.Log2()

◆ C# Math.Max()

◆ C# Math.MaxMagnitude()

◆ C# Math.Min()

◆ C# Math.MinMagnitude()

◆ [C# Math.Pow\(\)](#)

◆ [C# Math.Round\(\)](#)

◆ [C# Math.ScaleB\(\)](#)

◆ [C# Math.Sign\(\)](#)

◆ [C# Math.Sin\(\)](#)

◆ [C# Math.Sinh\(\)](#)

◆ [C# Math.Sqrt\(\)](#)

◆ [C# Math.Tan\(\)](#)

◆ [C# Math.Tanh\(\)](#)

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