

## Microsoft support: How to convert degrees/minutes/seconds angles to or from decimal angles in Excel 2000

Angular measurements are commonly expressed in units of degrees, minutes, and seconds (DMS). One degree equals 60 minutes, and one minute equals 60 seconds. To simplify some mathematical calculations you may want to express angular measurements in degrees and decimal fractions of degrees.

This article contains a sample custom function you can use to convert a degree value stored in decimal format, to DMS stored in text format, and a sample function that converts DMS to a degree value stored in decimal format.

```
Function Convert_Degree(Decimal_Deg) As Variant
With Application
    'Set degree to Integer of Argument Passed
    Degrees = Int(Decimal_Deg)
    'Set minutes to 60 times the number to the right
    'of the decimal for the variable Decimal_Deg
    Minutes = (Decimal_Deg - Degrees) * 60
    'Set seconds to 60 times the number to the right of the
    'decimal for the variable Minute
    Seconds = Format(((Minutes - Int(Minutes)) * 60), "0")
    'Returns the Result of degree conversion
    '(for example, 10.46 = 10~ 27 ' 36")
    Convert_Degree = " " & Degrees & "° " & Int(Minutes) & "' " _
        & Seconds + Chr(34)
End With
End Function
```

To use this function, create a conversion formula, as in the following example:

1. Start Excel and press ALT+F11 to start the Visual Basic editor.
2. On the Insert menu, click Module.
3. Enter the sample code for the Convert\_Degree custom function described above into the module sheet.
4. Press ALT+F11 to return to excel.
5. In cell A1 type 10.46.
6. In cell A2 type the following formula:=Convert\_Degree(A1)

The formula returns 10°27'36"

```
Function Convert_Decimal(Degree_Deg As String) As Double
' Declare the variables to be double precision floating-point.
Dim degrees As Double
Dim minutes As Double
Dim seconds As Double
' Set degree to value before "°" of Argument Passed.
degrees = Val(Left(Degree_Deg, InStr(1, Degree_Deg, "°") - 1))
' Set minutes to the value between the "°" and the "'"
' of the text string for the variable Degree_Deg divided by
' 60. The Val function converts the text string to a number.
minutes = Val(Mid(Degree_Deg, InStr(1, Degree_Deg, "°") + 2, _
    InStr(1, Degree_Deg, "'") - InStr(1, Degree_Deg, _
    "°") - 2)) / 60
' Set seconds to the number to the right of "'" that is
' converted to a value and then divided by 3600.
seconds = Val(Mid(Degree_Deg, InStr(1, Degree_Deg, "'") + _
    2, Len(Degree_Deg) - InStr(1, Degree_Deg, "'") - 2)) _
    / 3600
Convert_Decimal = degrees + minutes + seconds
End Function
```

To use this function, create a conversion formula, as in the following example:

1. Start Excel and press ALT+F11 to start the Visual Basic Editor.
2. On the Insert menu, click Module.
3. Enter the sample code for the Convert\_Decimal custom function described above into the module sheet.
4. Press ALT+F11 to return to excel.
5. In cell A1 type the following formula:=Convert\_Decimal("10° 27' 36'")  
NOTE: You are required to type three quotation marks (""") at the end of the argument of this formula to balance the quotation mark for the seconds and the quotation mark for the text string. A cell reference will not require a quotation mark.
6. The formula returns 10.46