You may create your own small programs in Excel using the built in programming language Visual Basic for Applications VBA.

Let us start with functions – A function returns a value into the cell the same way built-in functions do.

Let's take a look at an example.

ALT F11 puts you in visual basic

```
INSERT
MODULE
```

The code you write in visual basic is shown below. Also, see figure in text.

```
' To compute area of triangle
' given two sides and an included angle
Function Triarea(side1, side2, theta)
    alpha = Application.Radians(theta)
    Triarea = 0.5 * side1 * side2 * Sin(alpha)
End Function
```

Test Function to Compute Area of Triangle

<table>
<thead>
<tr>
<th>SideA</th>
<th>SideB</th>
<th>Angle</th>
<th>Formula</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>90</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>45</td>
<td>1.414214</td>
<td>1.414214</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>60</td>
<td>1.732051</td>
<td>1.732051</td>
</tr>
</tbody>
</table>
Let’s us create a more general function using the IF structure.
Let us say we want to have function to convert degree C to F or vice versa. This is the way to do it.

'To convert degree C to F or vice versa
Function convertdeg(degrees, TOF)
    If TOF = 1 Then
        convertdeg = (degrees * (9 / 5)) + 32
    Else
        convertdeg = (degrees - 32) * (5 / 9)
    End If
End Function

degrees    switch    degrees
40         1         104
100        1         212
212        0         100
-40        1         -40
-40        0         -40