

Vector Conversions on the TI-85 Calculator

The following instructions explain the key-by-key keystrokes necessary to convert a vector in Rectangular form to a vector in Polar form, and vice versa.

Before you begin, adjust the angular **MODE** of your calculator. If you want input or output in degrees, set the calculator to **DEGREE**; if you want radians, set the calculator to **RADIAN**.

Rectangular to Polar Conversion

1. Press 2^{nd} [
2. Enter the x and y coordinates separated by a comma: 1,3 for our example here.
3. Press 2^{nd}]
4. Press 2^{nd} **VECTR**. Select **OPS** (F4). Select **► Pol** (F3).

On the main screen you will see

[1,3]► Pol

5. Press **ENTER** to get the answer
6. The answer you will see on the main screen is in polar form.

[3.162277660 ∠ 1.24904577] *(If you are in radians mode)*

or

[3.16227766 ∠ 71.565051177] *(If you are in degrees mode)*

7. Use the left and right arrow keys to show all the digits, if necessary. Adjust the display mode to **FLOAT 6** or fewer decimal points to keep the display of the vector inside one screen width. To redisplay the answer after adjusting the display mode hit 2^{nd} **ENTER** and then **ENTER** again.
8. If you suddenly realize that your calculator is in the wrong angular mode, simply change the angular mode and hit 2^{nd} **ENTER** and then **ENTER** again. There is no need to reenter the vector or the **► Pol** operator.

Vector Conversions on the TI-85 Calculator

The following instructions explain the key-by-key keystrokes necessary to convert a vector in Polar form to a vector in Rectangular form.

Before you begin, adjust the angular **MODE** of your calculator. If you want input or output in degrees, set the calculator to **DEGREE**; if you want radians, set the calculator to **RADIAN**.

Polar to Rectangular Conversion

1. Press 2^{nd} [
2. Enter the **R**, the angle symbol (*use 2^{nd} comma to get the angle symbol*), and then the angle. Be sure the angle and the angular mode of the calculator agree. Enter degrees if it is in **DEGREE** mode and radians if it is in **RADIAN** mode. When in doubt, you may check and, if necessary, change the mode even in the middle of this entry process.

*(Be sure you are in **DEGREE** mode for this example.)*

As our example we will use **3.162278** \angle **71.565051** for **R** and θ , respectively.

3. Press 2^{nd}]
4. Press 2^{nd} **VECTR**. Select **OPS** (F4). Press **MORE**. Select \blacktriangleright **Rec** (F1).

On the main screen you will see

[**3.162278** \angle **71.565051**] \blacktriangleright **Rec** (*in Float 6 display mode*)

8. Press **ENTER** to get the answer.
9. The answer you will see on the main screen is in rectangular form.

[**1.000000** **3.000000**]