

Vector Addition on the TI-85 Calculator

The following instructions explain the key-by-key keystrokes necessary to add two vectors.

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**.

Adding vectors in Polar Form

(Be sure to check the angle mode of your calculator before you begin.)

1. Press 2^{nd} **VECTR**, then press **F4** (OPS).
2. In this example we will add two polar-form vectors: $[13\angle 120^\circ]$ and $[21\angle -45^\circ]$
3. Press

$$2^{\text{nd}} [\quad 13 \quad 2^{\text{nd}}, \quad 120 \quad 2^{\text{nd}}] + 2^{\text{nd}} [\quad 21 \quad 2^{\text{nd}}, \quad -45 \quad 2^{\text{nd}}]$$

4. On the main screen you will see

$$[13\angle 120] + [21\angle -45]$$

5. Press **ENTER** to get the answer in rectangular form.

$$[8.349242 \quad -3.5909121] \quad \text{(If you are in degrees mode)}$$

6. To convert the answer back to polar form, use the **VECTR** menu activated earlier.

Press **F3** (**► Pol**)

7. On the screen you will see

ANS► Pol

8. Press **ENTER** to get your answer in polar form.

$$[9.088702\angle -23.27197] \quad \text{(If you are in degrees mode)}$$

Vector Addition on the TI-85 Calculator

The following instructions explain the key-by-key keystrokes necessary to add two vectors.

Adding vectors in Rectangular Form

1. In this example we will add two rectangular-form vectors: [19, -3] and [-8, 16]
2. Press

$$2^{\text{nd}} [\quad 19 \quad , \quad -3 \quad 2^{\text{nd}}] + 2^{\text{nd}} [\quad -8 \quad , \quad 16 \quad]$$

3. On the main screen you will see

$$[19, -3] + [-8, 16]$$

4. Press **ENTER** to get the answer in rectangular form.

$$[11.000000 \ 13.000000]$$

5. Before you continue, adjust the angular **MODE** of your calculator. If you want output in degrees, set the calculator to **DEGREE**; if you want radians, set the calculator to **RADIAN**.
6. To convert the answer to polar form, use the VECTR menu.

Press 2^{nd} **VECTR**, then press **F4** (OPS).

7. Press **F3** (► Pol)

8. On the screen you will see

ANS► Pol

9. Press **ENTER** to get your answer.

$$[17.029386 \angle 49.763642] \quad (\text{If you are in degrees mode})$$

or

$$[17.029386 \angle .868539] \quad (\text{If you are in radians mode})$$