

## Vector Addition on the TI-89 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 set the angle mode to **DEGREE** before you begin this example.)*

1. To add the vectors  $[13\angle 120]$  and  $[21\angle -45]$ , press the following keys:

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

2. On the main screen you will see

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

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

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

4. To convert the answer to polar form, type

**UP-ARROW** **ENTER**. **CATALOG** **► Polar** **ENTER**

5. On the screen you will see

$[[8.349242 \quad -3.5909121]] \blacktriangleright \text{Polar}$

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

$[9.088702 \angle -23.27197]$  *(If you are in degrees mode)*

## Vector Addition on the TI-89 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.

$$[11. 13.]$$

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, type

**UP-ARROW ENTER. CATALOG ► Polar ENTER**

7. On the screen you will see

**[[11. 13.]►Polar**

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

$$[17.029386 \angle 49.76364] \quad (\text{If you are in degrees mode})$$

or

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