TI83 or TI82 Distance and midpoint program **DIST2**

```
:Disp "ENTER FIRST X"
:Input A
:Disp "ENTER FIRST Y"
:Input B
:Disp "ENTER SECOND X"
:Input C
:Disp "ENTER SECOND Y"
:Input D
:ClrHome
:√((A−C)^2+(B−D)^2)→F
:Disp "DISTANCE="
:Disp F
:(A+C)/2→I
:(B+D)/2→J
:Disp "MIDPOINT=(X,Y)="
:Disp I,J
```

Disp, **Input**, **ClrHome** are found under the **I/O** menu within the **PRGM** menu.
The arrow is the **STO→** button. The **equal sign** is under the **Test** menu (second function of the **MATH** button.) The **quote mark** is the **Alpha** function of the **plus** button. The **space key** is the **Alpha** function of the zero key. It looks like a little rectangle with no top.

To use the program:
Suppose we have two points (3, 15) and (-9, 10). We want to know the distance between the two points and the midpoint of the segment connecting them.

Press the **PRGM** button. You want to execute the program **DIST2**. So highlight **EXEC** at the top and highlight the program **DIST2** in the list. Press **ENTER**. This should put **prgmDIST2** on the home screen. Press **ENTER** to run the program. Follow the prompts. It does not matter which point you put in first. You essentially enter the first point's coordinates, *x* then *y*, and then the second point's coordinates, *x* then *y*. It will calculate the distance between the two points and their midpoint.

It will print out the following.

```
DISTANCE=
                 13
MIDPOINT=(X,Y)=
                 -3
               12.5
               Done
```

We read this as the distance between (3, 15) and (-9, 10) is 13 units and the midpoint of the segment connecting these two points is (-3, 12.5).