

In this first lesson for Unit 5 you will learn about some of Drawing commands that draw shapes on the Graph screen.

Objectives:

- Use the [draw] menu to get a drawing command.
- Learn the syntax of some of the drawing commands.
- Learn the difference between commands that use point coordinates and pixel coordinates.

The [DRAW] Menu

1. From the HOME screen press [DRAW] (2nd [PRGM])
2. Select **Line**(
3. Complete the command with **0,0,3,4**) so that the complete command states:
Line(0,0,3,4)
4. Press [ENTER] to see a line drawn from the origin to the point (3, 4) on the GRAPH screen.

Most drawing commands such as **Line**, **Circle**, and **Pt-On** use the WINDOW coordinates as the frame of reference.

Drawing in Programs

There are many TI-Basic programming tools that affect the appearance of the GRAPH screen. Here we examine a few of them:

- **ClrDraw** to clear any drawn objects [DRAW]
- **FnOff** to turn functions off [VARS] **YVARS On/Off**
- **PlotsOff** to turn stat plots off

Use the [DRAW] menu to select an object to draw. See the example to the right.

```
NORMAL FLOAT AUTO REAL RADIAN MP
DRAW POINTS STO BACKGROUND
1:ClrDraw
2:Line(
3:Horizontal
4:Vertical
5:Tangent(
6:DrawF
7:Shade(
8:DrawInv
9:Circle(
```

```
NORMAL FLOAT AUTO REAL RADIAN MP
PROGRAM: DRAW
:ClrDraw
:FnOff
:PlotsOff
:Line(0,0,3,4)
:
```

Color Options (TI-84 C and TI-84 CE only)

The **Line**(command has an optional fifth argument which determines the color to be used. To select a color press [PRGM] **COLOR** or [VARS] **COLOR** and select your color. The *name* of the color is inserted into your program but simply represents a number (BLUE=10, RED=11, BLACK=12, etc.). See the example to the right. Many drawing commands have a color option. On the TI-84 Plus the fourth argument can be a 1 or a 0: 1 to draw the line in black, 0 to draw it in white.

```
NORMAL FLOAT AUTO REAL RADIAN MP
PROGRAM: DRAW
:ClrDraw
:FnOff
:PlotsOff
:Line(0,0,3,4,MAGENTA)
:█
:
```

Help!

Help with any command in the calculator is available by pressing the [◻] key while highlighting the command on any menu. To the right is the help screen for the **Circle**(command. It shows the number and order of the entries. **X,Y** are the coordinates of the center of the circle, then the radius. The [optional] entries are the color name or number and the line style (1 to 4). You can complete the command right on this screen and then press the [TRACE] key to 'PASTE' the command into your program.

```
NORMAL FLOAT AUTO REAL RADIAN MP
CATALOG HELP
Circle(█
(X,Y,radius
[,color#,linestyle#])
PASTE ESC
```



TI-84 PLUS FAMILY

Can you draw this?

Can you duplicate the drawing at the right in a program?

Hint 1: it's only two commands but the window and the numbers are important!

Hint 2: (**X**, **Y**) is the center of the circle and **radius** is the distance from the center to the circle. (color# and linestyle# are optional)

Tip: you can set the GRAPH window in a program. While editing a program press **ZOOM** and choose a setting or assign values for each window edge by assigning values to the variables found on **VARS** Window... such as:

-20→Xmin

Circle Art

Complete the Circle statement in the program below to produce the picture to the right.

```
NORMAL FLOAT AUTO REAL RADIAN MP
PROGRAM:CIRCLES
:FnOff
:PlotsOff
:ClrDraw
:ZStandard
:ZSquare
:For(I,1,10)
:Circle( , , )
:End
```

*Note: **ZStandard** and **ZSquare** are found on the **ZOOM** menu.*

Copying one program to another:

1. Start a new program.
2. In the Editor press $[RCL]$ ($[2nd]$ $[STO]$).
3. Press $[PRGM]$ and arrow to EXEC.
4. Select the program you want to copy. See the screen to the right where we are in the process of copying prgmCIRCLES into prgmCOPY.
5. Press $[ENTER]$ to paste the code into the new program.

NORMAL FLOAT AUTO REAL RADIAN MP

PROGRAM: COPY
:

Rcl prgmCIRCLES

