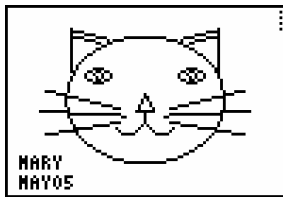
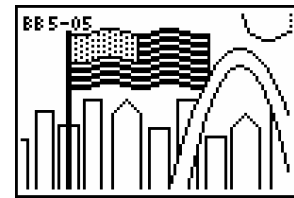
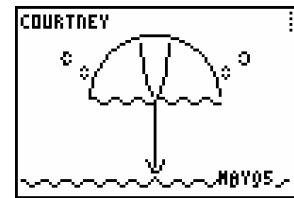


# Picture This!

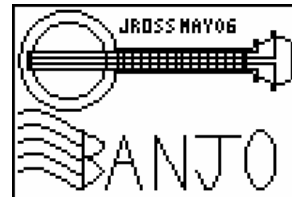
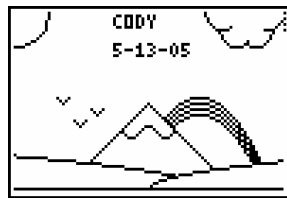
Using Transformations of Functions to Create "Art" on TI Graphing Calculators



**Interface 2007**  
Tan-Tar-A Resort  
Osage Beach, Missouri



February 26, 2007



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**GRAPHING ART Project**  
(Student Handout)

Your assignment is to create an artistic design by graphing various functions. Your design should be made with some or all of the following types of graphs:

- linear
- quadratic
- absolute value
- square root
- cubic
- cube root
- reciprocal
- greatest integer
- exponential
- logarithmic
- sine
- cosine
- tangent
- semicircle

**Due Date:** \_\_\_\_\_

1. Your design must include at least 8 functions which form lines or curves.
  - a. At least five different types of graphs listed above must be included.
  - b. Of the 8 required functions, none of the lines should be vertical or horizontal. (You can add vertical and horizontal lines in addition to the required equations.)
2. Your design cannot be a duplicate or extremely close copy of another person's design.
3. In your program, set a square window on your calculator so shapes will not be distorted. Also, begin and end the program with the general commands I will give you.
4. In addition to your design, your name and date must appear in the window.
5. You will store your design as a program in your calculator. At any time in the process, you can link the program to my computer so you will not lose what you have done. I recommend also having a written copy of your functions in case the program is lost.
6. When your art is completed, you will bring your calculator to me to link and print the program. (*Optional*) At that time, you will also need to have a title for your design.

## NOTES TO TEACHERS:

- ◆ Because I am "selfish" with my class time and because of the curricular demands placed on math teachers due to grade-level expectations and other standards, I would not have my students use class time to complete a long-term project such as this if I did not consider it to be very valuable. I believe the project addresses the following standards, and possibly others as well.

### Missouri Show-Me Standards:

- ✓ MA 2 – “geometric and spatial sense involving . . . transformations of shapes”
- ✓ MA 4 – “patterns and relationships within and among functions . . .”
- ✓ 1.4 – “use technological tools . . . to . . . organize information”
- ✓ 1.8 – “organize data, information and ideas into useful forms (including . . . graphs . . . ) for analysis or presentation
- ✓ 2.1 – “plan and make . . . visual presentations for a variety of purposes and audiences”
- ✓ 3.6 – “examine problems and proposed solutions from multiple perspectives”


### Missouri Mathematics Grade-Level Expectations:

- ✓ A1D grades 8-12 – “Identify and compare functions”
  - ✓ A1E grades 9-12 – “Describe the effects of parameter changes”
  - ✓ G3B grades 9-12 – “Use transformations on functions”
- ◆ I have designed this project for use in a college algebra or pre-calculus class. It could be used in other classes as well, with the requirements for the number and types of functions varied, depending on the level of your class and what types of functions you have taught.
  - ◆ The amount of in-time class spent on the project will have to be adjusted to fit your situation. I have done this at a school where all my students had their own calculators, and a large amount of the work was done outside of class. At my current school, not many students have their own calculators, so we do most of the work on the project in class. When possible, we use "down" time, such as a week near the end of school when several clubs are taking field trips.
  - ◆ Linking the program to a computer requires the use of a graph-link and software. I have used TI Graph-Link software to download the actual steps of the program.
  - ◆ TI-Connect has a "screen capture" option where you can copy the graphed picture from the screen, but it cannot be used to download and print the steps of the program in any way other than a screen shot.
  - ◆ If you use this activity in your classroom, I would like to hear about your results and any changes or improvements you might make to the project.






## GENERAL INFORMATION




As with most activities, students begin this project with varying degrees of interest and enthusiasm. Some come up with ideas immediately about what they want to “draw.” Others start graphing functions and see what “picture” develops. Still others struggle for a while before really getting started. One of the nice results of the project is seeing how individual students bring their areas of interest into a math class.

Some students will have as their goal getting a picture done with the minimum requirements met – regardless of what the picture is. Others will have a goal of “drawing” a certain picture – no matter how difficult the task is. Some have taken on a difficult design and had to abandon it after a while. Others have shown determination and completed something much more involved than I expected.

Students usually begin the project by typing functions into the  menu and looking at the graphs. Since only 10 functions can be graphed at a time, they will probably have to start putting the functions into a program before completing their design. The next four pages of this handout give instructions for programming. I have included actual key strokes for finding many of the commands that will be needed.



At any time while they are writing the program, students can exit the program edit mode, run the program, and see what their picture will look like up to that point. Here are the directions for going from editing to running the program.

From the edit mode, press   . That will take you to the home screen. From there, press  , scroll down to the name of your program, and press   .

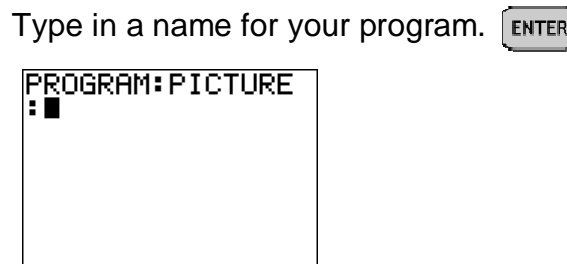
After seeing the picture, you can go back into the editing mode by pressing   , scrolling down to the name of your program, and pressing  .

The process of going back and forth between entering functions, running the program, going back to editing, etc., will probably have to be repeated several times before the project is completed. The process is not difficult but can be tedious.

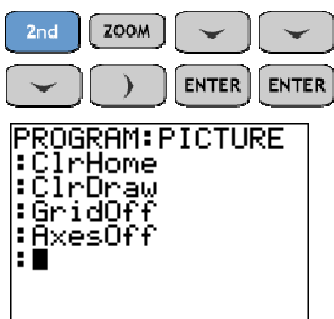
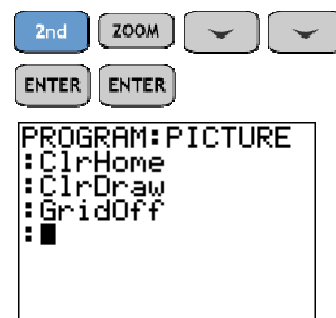
\*\*\*A couple of clarifications on the calculator keyboard:

 -- subtraction key in the right column     -- negative key on bottom row

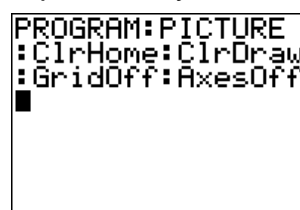
## Start Program



## Set commands to clear the screen and prepare for the picture.



If you prefer, you can put more than one command on the same line, separated by colons.



There are other commands that may also be helpful at the beginning of the program. For example, if you intend to use sine or cosine functions, setting a “Radian” or “Degree” (depending on how you set up the scale for your functions) command might be good. These beginning commands are for the purpose of getting all the settings right, rather than having to remember to change them before running the program each time. You might also want to include “Plots Off” and “FnOff” (functions off) commands. Both of those can be found in the calculator’s function catalog.

## Set “Square” Window

On the calculator viewing window, there are 95 pixels across and 63 pixels up and down. Setting a standard window such as -10 to 10 on both the x and y axes will distort shapes. Circles will look like ellipses and squares will look like rectangles.

Counting one pixel each direction for the axes, we are left with 94 horizontal pixels (47 on each side of the y-axis) and 62 vertical pixels (31 on each side of the x-axis). For your window to be “square,” you can set Xmin and Xmax as multiples of 4.7 and Ymin and Ymax as multiples of 3.1. (Multiples must all be the same.)

(-) 4 . 7 X 5  
STO VARS 1 1 ENTER

```
PROGRAM:PICTURE
:ClrHome
:ClrDraw
:GridOff
:AxesOff
:-4.7*5→Xmin
:
```

4 . 7 X 5  
STO VARS 1 2 ENTER

```
PROGRAM:PICTURE
:ClrHome
:ClrDraw
:GridOff
:AxesOff
:-4.7*5→Xmin
:4.7*5→Xmax
:
```

(-) 3 . 1 X 5  
STO VARS 1 4 ENTER

```
PROGRAM:PICTURE
:ClrDraw
:GridOff
:AxesOff
:-4.7*5→Xmin
:4.7*5→Xmax
:-3.1*5→Ymin
:
```

3 . 1 X 5  
STO VARS 1 5 ENTER

```
PROGRAM:PICTURE
:GridOff
:AxesOff
:-4.7*5→Xmin
:4.7*5→Xmax
:-3.1*5→Ymin
:3.1*5→Ymax
:█
```

You can put commands on the same line, separated by colons.

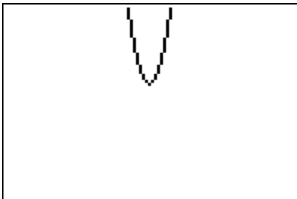
```
PROGRAM:PICTURE
:GridOff:AxesOff
:-4.7*5→Xmin:4.7
*5→Xmax
:-3.1*5→Ymin:3.1
*5→Ymax
:
```

## Entering Functions, Lines, Points, and Text

Now you are ready to start putting functions into the program for drawing the picture. Each function must start with the DrawF command.

2nd PRGM 6 X,T,θ,n x<sup>2</sup> + 3 ENTER


```
PROGRAM:PICTURE
:GridOff
:AxesOff
:-4.7*5→Xmin
:4.7*5→Xmax
:-3.1*5→Ymin
:3.1*5→Ymax
:DrawF X2+3
```



You might need to limit the domain of a function to control how much of the graph appears in your picture.

2nd PRGM 6 X,T,θ,n x<sup>2</sup> + 3 ÷ ( ( X,T,θ,n 2nd MATH 3 (-) 1 ) ( X,T,θ,n 2nd MATH 5 2 ) ) ENTER

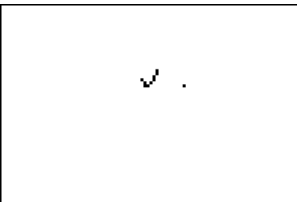
```
PROGRAM:PICTURE
:-4.7*5→Xmin
:4.7*5→Xmax
:-3.1*5→Ymin
:3.1*5→Ymax
:DrawF X2+3/(X-1)(X-2)
```



You can draw points in your picture.

2nd PRGM ) 1 6 , 3 ) ENTER

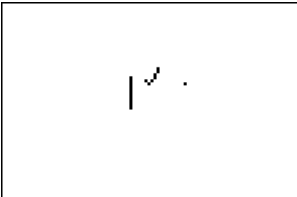
```
PROGRAM:PICTURE
:4.75*5→Xmax
:-3.1*5→Ymin
:3.1*5→Ymax
:DrawF X2+3/(X-1)(X-2)
:Pt-On(6,3)
```



You can draw vertical lines in your picture. (The numbers you enter in parentheses are the endpoints of the line you want to draw.)

2nd PRGM 2 (-) 3 , 4 , (-) 3 , (-) 1 ) ENTER

```
PROGRAM:PICTURE
:-3.1*5→Ymin
:3.1*5→Ymax
:DrawF X2+3/(X-1)(X-2)
:Pt-On(6,3)
:Line(-3,4,-3,-1)
```



After completing the picture, add your name and the date to the image. The coordinates in the "Text" commands are counted from (0,0) at the top left corner of the viewing screen. Any text you want to appear on the picture must be in quotes.


```
PROGRAM:PICTURE
-1)(X<2)
:Pt-On(6,3)
:Line(-3,4,-3,-1)
)
:Text(0,60,"PAM"
)
:

```

```
PROGRAM:PICTURE
:Line(-3,4,-3,-1)
)
:Text(0,60,"PAM"
)
:Text(10,60,"2-2
6-07")
:

```

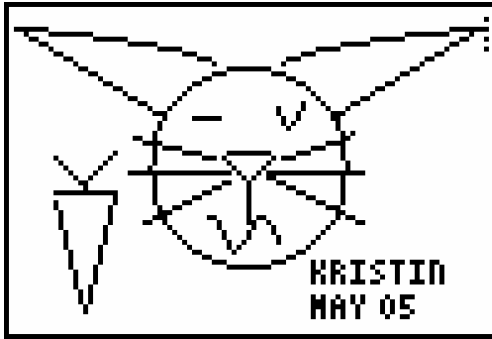
## Set your calculator back to standard settings.

Putting in a "Pause" command allows the picture to remain displayed on the viewing screen until the "Enter" key is pressed. The standard settings clear the drawing and reset the axes on a standard graphing window.


```
PROGRAM:PICTURE
:Text(10,60,"2-2
6-07")
:Pause
:ClrDraw
:AxesOn
:ZStandard
:
```

Or put commands on one line, separated by colons.

```
PROGRAM:PICTURE
:Text(10,60,"2-2
6-07")
:Pause
:ClrDraw:AxesOn:
ZStandard
:█
```



```

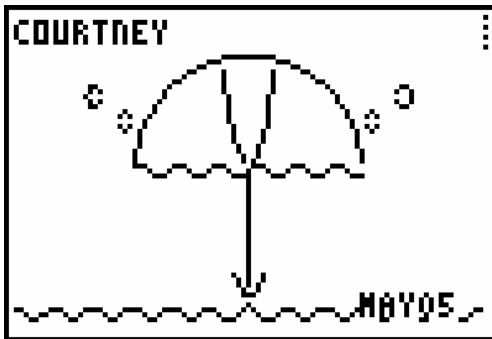
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*6→Xmin:4.7*6→Xmax
-3.1*6→Ymin:3.1*6→Ymax
DrawF √(144-X²)
DrawF -√(144-X²)
DrawF 2sin(X)-8/(X>-5)/(X<4)
DrawF 6/((X>-7)(X<-3))
DrawF (X-5)²+5/((X>3)(X<7))
DrawF 2/((X>-3)(X<3))
DrawF X-2/((X>0)(X<3.5))
DrawF -X-2/((X>-3.5)(X<0))
DrawF -18+4abs(X+20)/((X>-24)(X<-16))
DrawF -3/((X>-24)(X<-16))
Line(0,-2,0,-6.75)
DrawF X+18/((X>-20)(X<-16))

```

```

DrawF -X-22/((X>-24)(X<-19))
DrawF 12+√(X-4)
DrawF 12+√(-X-4)
DrawF .60X/(X>10)
DrawF -.60X/(X<-10)
DrawF .5X-.5/((X>-13)(X<-2))
DrawF -.5/((X>-15)(X<-2))
DrawF -.25X/((X>-14)(X<-4))
DrawF .35X-.5/((X>4)(X<13))
DrawF -.25X/((X>-1)(X<-4))
DrawF -.5X/((X>2)(X<14))
DrawF -.5/((X>2)(X<14))
Text(49,60,"KRISTIN")
Text(56,60,"MAY 05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

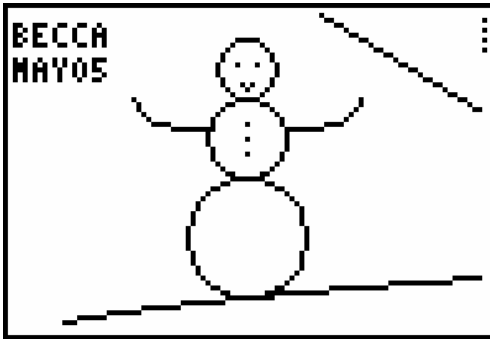
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*8→Xmin
4.7*8→Xmax
-3.1*8→Ymin
3.1*8→Ymax
DrawF √(340-X²)
DrawF sin(X)/(X<18.5)/(X>-18.5)
Line(0,-18.5,0,0)
DrawF √(340-X²)
DrawF sin(X)/(X<18.5)/(X>-18.5)
DrawF (1/2)X²-20/(X<3)/(X>-3)
DrawF 2^X/(X>0)/(X<4.8)
DrawF 2^-X/(X>-4.8)/(X<0)

```

```

DrawF cos(X)-23
DrawF √(2-(X-25)²)+12
DrawF -√(2-(X+25)²)+12
DrawF √(2-(X+25)²)+12
DrawF √(2-(X-20)²)+8
DrawF -√(2-(X-20)²)+8
DrawF √(2-(X+20)²)+8
DrawF -√(2-(X+20)²)+8
DrawF -√(2-(X-25)²)+12
Text(0,0,"COURTNEY")
Text(55,70,"MAY05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

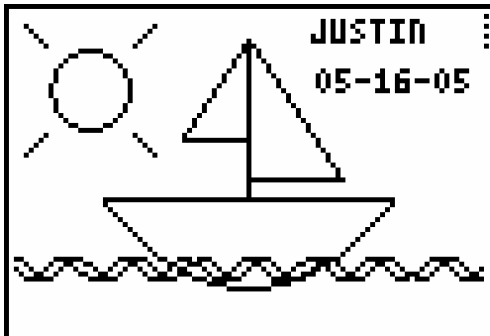
ClrDraw
ClrHome
GridOff
AxesOff
-4.7*5->Xmin
4.7*5->Xmax
-3.1*5->Ymin
3.1*5->Ymax
Pt-On(-1,10.5)
Pt-On(1,10.5)
Pt-On(0,1.5)
Pt-On(0,3)
Pt-On(0,3)
Pt-On(0,4.5)
DrawF  $(\sqrt{9-X^2})+10$ 
DrawF  $(-\sqrt{9-X^2})+10$ 

```

```

DrawF  $(\sqrt{16-X^2})+3$ 
DrawF  $(-\sqrt{16-X^2})+3$ 
DrawF  $(\sqrt{36-X^2})-7$ 
DrawF  $(-\sqrt{36-X^2})-7$ 
DrawF  $\sqrt{X+25}-18$ 
DrawF  $2X^2+8/(X>-1)/(X<1)$ 
DrawF  $(2^X(X-10))+4/(X>4)/(X<12)$ 
DrawF  $(2^{(-X-10)})+4/(X<-3)/(X>-12)$ 
DrawF  $2(-\log(2)X)+20$ 
Text(1,0,"BECCA")
Text(8,0,"MAY05")
Pause
ClrDraw
AxesOn
ZStandard

```



```

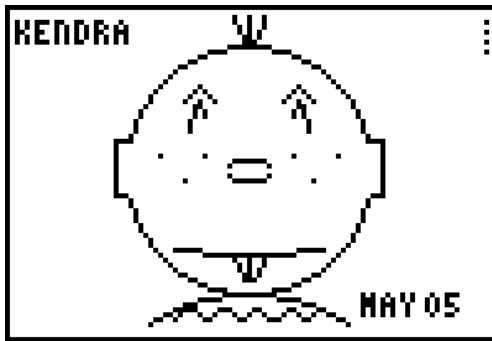
ClrHome
ClrDraw
GridOff
AxesOff
4.7*5->Xmax
-4.7*5->Xmin
3.1*5->Ymax
-3.1*5->Ymin
DrawF  $\sin(X)-10$ 
DrawF  $\cos(X)-10$ 
DrawF  $\sqrt{16-(X+16)^2}+8$ 
DrawF  $(-\sqrt{16-(X+16)^2})+8$ 
DrawF  $1/25(X^2)-12/(X>-15)/(X<15)$ 
DrawF  $-3/(X>-15)/(X<15)$ 

```

```

DrawF  $-\text{abs}(1.5X)+13/(X>-7)/(X<10)$ 
DrawF  $-1/(X>0)/(X<10)$ 
DrawF  $3/(X>-7)/(X<0)$ 
DrawF  $X+24/(X>-12)/(X<-9)$ 
DrawF  $X+24/(X<-20)/(X>-23)$ 
DrawF  $-X-8/(X<-20)/(X>-23)$ 
DrawF  $-X-8/(X>-12)/(X<-9)$ 
Line(0,-3,0,13)
Text(00,60,"JUSTIN")
Text(10,60,"05-16-05")
Pause
ClrDraw
AxesOn
ZStandard

```



```

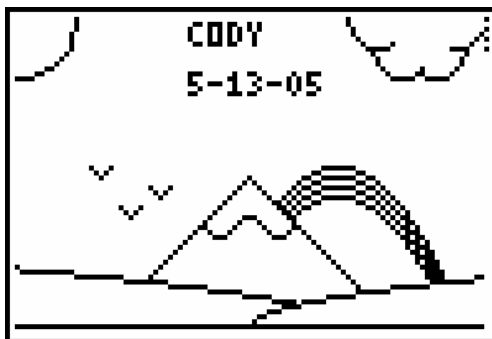
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*9→Xmin:4.7*9→Xmax
-3.1*9→Ymin:3.1*9→Ymax
DrawF -abs(X-9)+15/(X>6)/(X<12)
DrawF √(5-X²/4)
DrawF -√(5-X²/4)
Line(0,27.9,0,23.4)
DrawF -2X+22/(X<0)
DrawF 2X+22/(X>0)
DrawF √(500-X²)
DrawF -√(500-X²)
DrawF
(-(1.5X+13.8)²)+13/(X>-11)/(X<-7.8)
DrawF -(1.5X-
13.8)²)+13/(X>7.8)/(X<11)
DrawF -abs(X+9)+15/(X<-6)/(X>-12)
DrawF -√(350-
X²/5)+3.5/(X<14.4)/(X>-14.4)
DrawF √(1150-X²)-56.5

```

```

DrawF sin(15X)-26/(X>-14.4)/(X<12)
Pt-On(-8.1,2.7)
Pt-On(-11.7,-1.8)
Pt-On(16.2,2.7)
Pt-On(11.7,-1.8)
Pt-On(8.1,2.7)
DrawF .5X²-19.8/(X>-3.6)/(X<3.6)
Line(0,-15.3,0,-18.9)
DrawF 5.4/(X>21.6)/(X<24.3)
DrawF -4.5/(X>21.6)/(X<24.3)
DrawF 5.4/(X>-24.3)/(X<-21.6)
DrawF -4.5/(X>-24.3)/(X<-21.6)
Line(-24.3,-4.5,-24.3,5.4)
Line(24.3,-4.5,24.3,5.4)
Text(0,0,"KENDRA")
Text(55,70,"MAY 05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

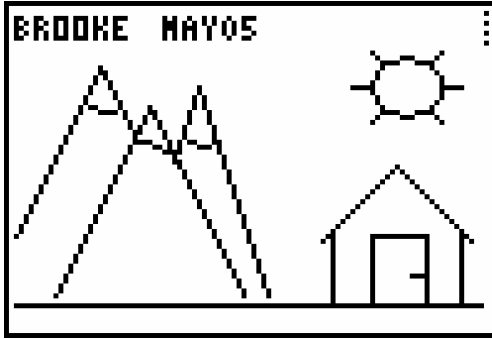
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5→Xmin:4.7*5→Xmax
0→Ymin:31→Ymax
DrawF √(X)
DrawF √(-X+10)/(X<5.5)
DrawF 0
DrawF
-abs(X)+15/((X<11.5)(X>-10.5))
DrawF cos(X)+10/((X>-5)(X<5))
DrawF -√(36-
(X+23.5)²)+31/(X≥-23.5)
DrawF -√(9-(X-13)²)+31/(X<15)
DrawF -√(9-(X-15.5)²)+28/(X<18)
DrawF -√(9-(X-19)²)+28/(X≥17.5)

```

```

DrawF -√(9-(X-21)²)+31/(X>20)
DrawF -.1(X-
9)²+16/((X>2.5)(X≤19.5))
DrawF -.1(X-9)²+15/((X≥3.5)(X≤19))
DrawF -.1(X-9)²+14/((X≥4)(X≤18.5))
DrawF -.1(X-9)²+13/((X≥4.5)(X≤18))
DrawF
abs(X+15)+15/((X≥-16)(X≤-14))
DrawF
abs(X+12)+11/((X≥-13)(X≤-11))
DrawF abs(X+9)+13/((X≥-10)(X≤-8))
Text(0,35,"CODY")
Text(10,35,"5-13-05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

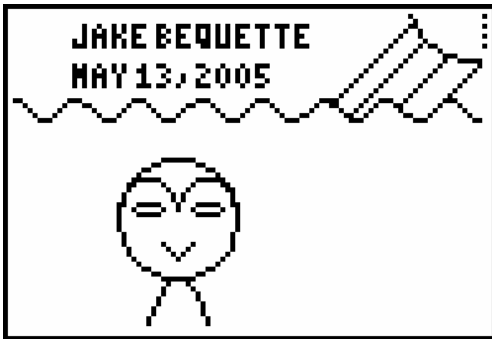
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5->Xmin:4.7*5->Xmax
-3.1*5->Ymin:3.1*5->Ymax
DrawF  $\sqrt{(15-(X-16)^2)}+7$ 
DrawF  $-\sqrt{(15-(X-16)^2)}+9$ 
DrawF  $-\text{abs}(2X+20)+6/(X>-20)/(X<0)$ 
DrawF  $-\text{abs}(3X+15)+8/(X>-8)/(X<2.5)$ 
DrawF  $-\text{abs}(2X+30)+10/(X<-11)$ 
DrawF  $1/2\sin(X)+6/(X>-17)/(X<-13)$ 
DrawF  $1/2\sin(X)+2/(X>-12)/(X<-7)$ 
DrawF  $\sin(-X)+3/(X>-7)/(X<-3)$ 
DrawF  $X-8/(X<14)/(X>12)$ 
DrawF  $X-8/(X<20)/(X>18)$ 
DrawF  $8/(X<13)/(X>10)$ 
DrawF  $8/(X>19)/(X<22)$ 
DrawF  $-\text{abs}(X-15)/(X>7)/(X<23)$ 

```

```

DrawF  $-14/(X>8)/(X<22)$ 
DrawF  $(-X)+24/(X<20)/(X>18)$ 
DrawF  $(-X)+24/(X>12)/(X<14)$ 
Line(21.5,-14,21.5,-6.5)
Line(8.5,-6.5,8.5,-14)
DrawF -14
Line(12.5,-7,18,-7)
Line(18,-14,12.5,-14)
Line(12.5,-7,12.5,-14)
Line(18,-7,18,-14)
DrawF  $-11/(X<18)/(X>16)$ 
Text(0,0,"BROOKE")
Text(0,30,"MAY05")
Pause
ClrDraw:AxesOn:Zstandard

```



```

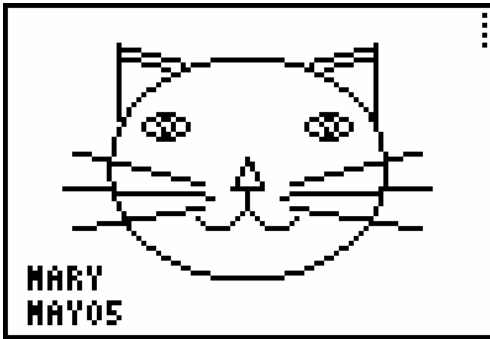
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5->Xmin:4.7*5->Xmax
-3.1*5->Ymin:3.1*5->Ymax
DrawF  $\sin(X)+6$ 
DrawF  $\sqrt{(36-(X+7)^2)}-5$ 
DrawF  $-\sqrt{(36-(X+7)^2)}-5$ 
DrawF  $\sqrt{(9-(X+10)^2)}-4$ 
DrawF  $\sqrt{(9-(X+4)^2)}-4$ 
DrawF  $\sqrt{(3-(X+4)^2)}-5$ 
DrawF  $-\sqrt{(3-(X+4)^2)}-3$ 
DrawF  $\sqrt{(3-(X+10)^2)}-5$ 
DrawF  $-\sqrt{(3-(X+10)^2)}-3$ 

```

```

DrawF  $\text{abs}(X+7)-9/((X>-9)(X<-5))$ 
DrawF  $-.5(X+7)^2-11$ 
DrawF  $X-9/((X>15)(X<21))$ 
DrawF  $X-13/(X>19)$ 
DrawF  $-\sqrt{(49-(X-23)^2)}+18$ 
DrawF  $X-5/((X>10)(X<18))$ 
DrawF  $X-2/((X>8)(X<17))$ 
Text(1,12,"JAKE BEQUETTE")
Text(9,12,"MAY 13, 2005")
Pause
ClrDraw:AxesOn:ZStandard

```



```

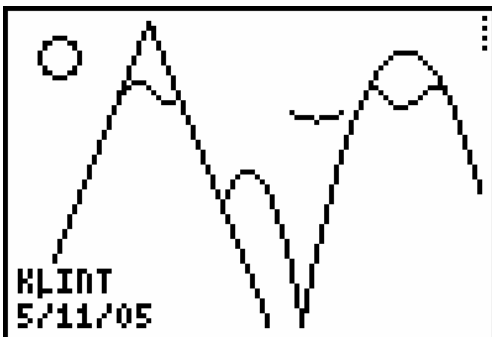
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5→Xmin
4.7*5→Xmax
-3.1*5→Ymin
3.1*5→Ymax
DrawF .5sin(X-.5)+5/(X>5.5)/(X<11)
DrawF -.5sin(X-.5)+3.5/(X>5.5)/(X<11)
DrawF .5sin((-X)-.25)+5/(X>-11)/(X<-5.5)
DrawF -.5sin((-X)-.25)+3.5/(X>-11)/(X<-5.5)
DrawF -2abs(X)+1/(X<2)/(X>-2)
DrawF -2/(X<2)/(X>-2)
DrawF √(.5625-(X-8.25)²)+4.25
DrawF -√(.5625-(X-8.25)²)+4.25
DrawF √(.5625-(X+8.25)²)+4.25
DrawF -√(.5625-(X+8.25)²)+4.25
DrawF (√(196-X²))/1.25
DrawF -(√(196-X²))/1.25

```

```

DrawF (2/9)(X-3)²-6/(X≥0)/(X≤5)
DrawF (2/9)(X+3)²-6/(X≤0)/(X≥-5)
Line(0,-4,0,-2)
DrawF X/4+9/(X<13.5)/(X>6)
DrawF X/4+8/(X<13.5)/(X≥8)
DrawF -X/4+8/(X>-13.5)/(X≤-8)
DrawF -X/4+9/(X>-13.5)/(X<-6)
Line(12.75,12.5,12.75,5)
Line(-13,12.5,-13,5)
DrawF X/4-2.75/(X>4)/(X<18)
DrawF X/18-3/(X>3)/(X<19)
DrawF -X/6-3.25/(X>4)/(X<18)
DrawF -X/4-2.75/(X<-4)/(X>-18)
DrawF -X/18-3/(X>-19)/(X<-3)
DrawF X/6-3.25/(X<-4)/(X>-18)
Text(50,3,"MARY")
Text(57,3,"MAY05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

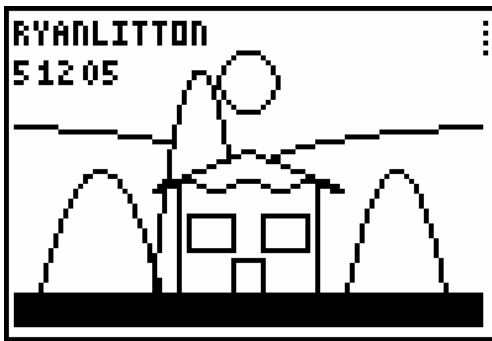
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5→Xmin
4.7*5→Xmax
-3.1*5→Ymin
3.1*5→Ymax
Radian
DrawF -.5X²/(X>-3)
DrawF -2.5abs(X+10)+15
DrawF -(X-8)²+12
DrawF √(4-(X+19)²)+11.5

```

```

DrawF -√(4-(X+19)²)+11.5
DrawF .5√(X-7)+5/(X<10)
DrawF sin(X)+8/(X>-13)/(X<-6.5)
DrawF cos(X)+7.5/(X>12)/(X<20)
DrawF .5√(-X+7)+5/(X>4)
Text(50,1,"KLINT")
Text(57,1,"5/11/05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

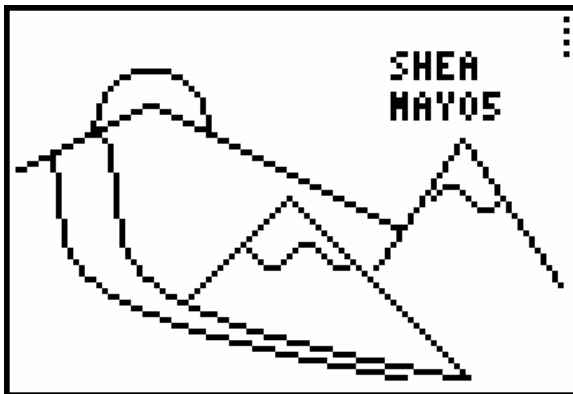
ClrHome
ClrDraw
GridOff
AxesOff
-4.7*5→Xmin
4.7*5→Xmax
-3.1*5→Ymin
3.1*5→Ymax
DrawF -.4abs(X)+2/((X>-10)(X<10))
DrawF .5cos(X)-1.5/((X>-10)(X<10))
DrawF -12.5
DrawF log(-X)/log(2)/(X<-7.5)
DrawF log(X)/log(2)/(X>2)
Line(-7,-1.5,7,-12.5)
Line(7,-1.5,7,-12.5)
DrawF -8/((X>1.5)(X<6))
DrawF -8/((X>-6)(X<-1.5))
DrawF -4.5/((X>1.5)(X<6))
DrawF -4.5/((X>-6)(X<-1.5))
DrawF -9/((X>-1.5)(X<1.5))

```

```

Line(-1.5,-9,-1.5,-12.5)
Line(1.5,-9,1.5,-12.5)
Line(-1.5,-4.5,-1.5,-8)
Line(1.5,-4.5,1.5,-8)
Line(-6,-4.5,-6,-8)
Line(6,-4.5,6,-8)
DrawF
-(X+5)2+10/((X>-10.5)(X<-1.5))
DrawF √(9-X2)+9
DrawF -√(9-X2)+9
DrawF -.5(X-15)2
DrawF -(1/3)(X+15)2
Shade(-15.5,-12.5)
Text(0,0,"RYANLITTON")
Text(8,0,"5 12 05")
Pause
ClrDraw
AxesOn
ZStandard

```



```

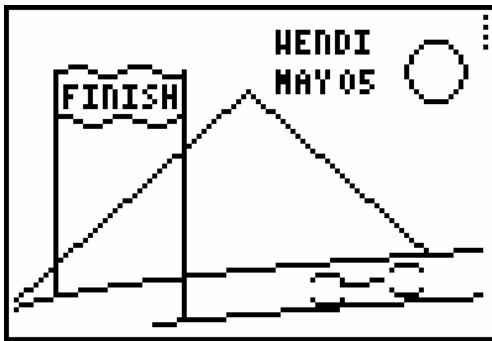
ClrHome
ClrDraw
GridOff
AxesOff
-4.7*5→Xmin
4.7*5→Xmax
-3.1*5→Ymin
3.1*5→Ymax
DrawF 53√(-X-20)/(X>-21)
DrawF 53√(-X-15)/(X>-17)
DrawF -abs(X)/(X>-9)

```

```

DrawF -1.5abs(X-15)+5/(X>7)
DrawF -.5abs(X+12)+8/(X<10)
DrawF √(25-(X+12)2)+6
DrawF cos(X+5)/(X>12)/(X<19)
DrawF sin(X)-5/(X>-4)/(X<6)
Text(5,65,"SHEA")
Text(12,65,"MAY05")
Pause
ClrDraw
AxesOn
ZStandard

```



```

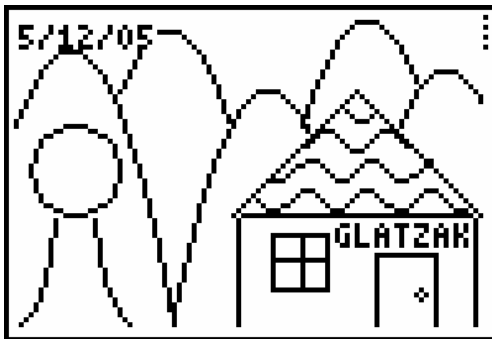
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5→Xmin
4.7*5→Xmax
-3.1*5→Ymin
3.1*5→Ymax
DrawF  $\sqrt{(X+25)-15}$ 
DrawF  $\sqrt{(9-(X-19)^2)+10}$ 
DrawF  $-\sqrt{(9-(X-19)^2)+10}$ 
DrawF  $-\text{abs}(.9X)+8/(X<19)$ 
DrawF  $\sqrt{(X+30)-20}$ 
DrawF  $.5\cos(X)+5/(X<-6)/(X>-20)$ 
DrawF  $.5\sin(X)+10/(X<-6)/(X>-20)$ 

```

```

DrawF  $\sqrt{(3-(X-8)^2)-12}$ 
DrawF  $-\sqrt{(3-(X-8)^2)-12}$ 
DrawF  $\sqrt{(3-(X-16)^2)-11}$ 
DrawF  $-\sqrt{(3-(X-16)^2)-11}$ 
DrawF  $\sqrt{(X+27)-17.5/(X>9)/(X<14)}$ 
Line(-6.5,-15,-6.5,10)
Line(-19.5,-12,-19.5,10)
Text(13,10,"FINISH")
Text(02,53,"WENDI")
Text(10,53,"MAY 05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5→Xmin:4.7*5→Xmax
-3.1*5→Ymin:3.1*5→Ymax
Line(-1,-15.5,-1,-5)
Line(23,-15.5,23,-5)
DrawF  $-\text{abs}(X-11.0)+8/(X>-2)$ 
Line(19,-15.5,19,-8.5)
Line(13,-15.5,13,-8.5)
DrawF  $-8.5/(13<X)/(X<19)$ 
DrawF  $2^{\wedge}(X+23)-16.5/(X<-19.25)$ 
DrawF  $2^{\wedge}(-X-12)-16.5/(X>-15.7)$ 
DrawF  $-.25(X+18)^2+12$ 
DrawF
 $-.25(X+8)^2+14/((X>-13.5)(X<-1.5))$ 
DrawF  $-.25(X-2)^2+8/(X<6.5)$ 
DrawF  $-.25(X-12)^2+15/((X>5)(X<17.5))$ 
DrawF  $-.25(X-20)^2+10/(X>14.8)$ 
DrawF  $\sqrt{(4.50^2-(X+17.5)^2)}$ 

```

```

DrawF  $-\sqrt{(4.50^2-(X+17.5)^2)}$ 
Line(2.5,-12,2.5,-6.5)
Line(8,-12,8,-6.5)
DrawF  $-6.5/((X>2.5)(X<8))$ 
DrawF  $-12/((X>2.5)(X<8))$ 
Line(5.25,-12,5.25,-6.5)
DrawF  $-9.25/((X>2.5)(X<8))$ 
DrawF  $-4.5/((X>-1)(X<23))$ 
DrawF  $\sqrt{(.51^2-(X-17.5)^2)-12.5}$ 
DrawF  $-\sqrt{(.51^2-(X-17.5)^2)-12.5}$ 
DrawF  $\cos(X)/((X>2)(X<19))$ 
DrawF  $(\sin(X)+3)/((X>5.5)(X<17))$ 
DrawF  $(\sin(X+2)-3)/((X>.5)(X<22.5))$ 
DrawF  $(\cos(X-2)+6)/((X>9.5)(X<13))$ 
Text(41,65,"GLATZAK")
Text(1,1,"5/12/05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

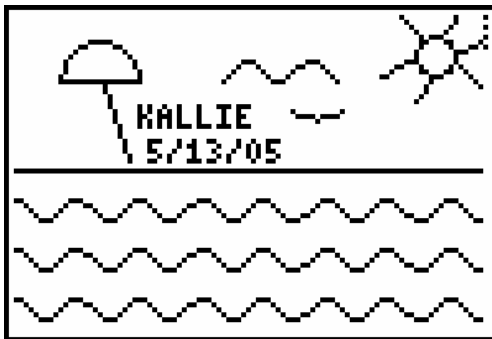
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*10→Xmin:4.7*10→Xmax
-3.1*10→Ymin:3.1*10→Ymax
DrawF 4abs(X)-30/(X>-8)/(X<8)
DrawF 2sin(X+10)/(X>-13)/(X<13)
DrawF √(121-X²+2)
DrawF X/(X>-7)/(X<0)
DrawF X-4/(X>-6)/(X<5)
DrawF X-8/(X>-5)/(X<7)
DrawF X-12/(X>-4)/(X<8)
DrawF X-16/(X>-3)/(X<6)
DrawF X-20/(X>-2)/(X<5)
DrawF X-24/(X>-1)/(X<4)
DrawF -X/(X>0)/(X<6)

```

```

DrawF -X-4/(X>-4)/(X<6)
DrawF -X-8/(X>-8)/(X<6)
DrawF -X-12/(X>-7)/(X<5)
DrawF -X-16/(X>-6)/(X<4)
DrawF -X-20/(X>-5)/(X<3)
DrawF -X-24/(X>-3)/(X<2)
DrawF 2sin(X)+10/(X>-15)/(X<12)
DrawF √(121-X²+2)+10
DrawF √(16-X²)+20
DrawF 2√(X)+23/(X<5)
Text(0,0,"SAVANNAH")
Text(10,0,"MAY 05")
Pause
ClrDraw:AxesOn:ZStandard

```



```

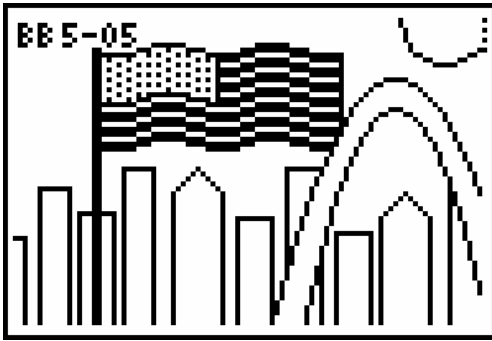
ClrHome:ClrDraw:GridOff:AxesOff
-4.7*5→Xmin
4.7*5→Xmax
-3.1*5→Ymin
3.1*5→Ymax
DrawF sin(X)-4
DrawF sin(X)-9
DrawF sin(X)-14
DrawF cos(X)+10/(X<9.5)/(X>-3)
DrawF .5√(X-7)+5/(X<10)
DrawF .5√(-X+7)+5/(X>4)
DrawF -(3X+35)/(X<-11.5)/(X>-15)
DrawF 0
DrawF √((16-(X+15)²))+9
DrawF 9/(X<-10.5)/(X>-19)

```

```

DrawF √(4-(X-19)²)+11.5
DrawF -√(4-(X-19)²)+11.5
DrawF .5X+1/(X>21)
DrawF -1.1(X-29.5)/(X<18)
DrawF -(X-32)/(X>21)
DrawF .65X+.5/(X>13)/(X<17.5)
DrawF 1.4(X-10)/(X>19)
DrawF 1.4(X-12)/(X<19)/(X>16.5)
Text(17,25,"KALLIE")
Text(24,27,"5/13/05")
Pause
ClrDraw
AxesOn
ZStandard

```



ClrHome:ClrDraw:GridOff:AxesOff

-47→Xmin:47→Xmax:-31→Ymin:31→Ymax

DrawF (sin(.3X)+5)/((X<18)/(X>-30))

DrawF (sin(.3X)+6)/((X<18)/(X>-30))

DrawF (sin(.3X)+8)/((X<20)/(X>-30))

DrawF (sin(.3X)+9)/((X<20)/(X>-30))

DrawF (sin(.3X)+11)/((X<20)/(X>-30))

DrawF (sin(.3X)+12)/((X<20)/(X>-30))

DrawF (sin(.3X)+14)/((X<20)/(X>-30))

DrawF (sin(.3X)+15)/((X<20)/(X>-6))

DrawF (sin(.3X)+17)/(X<20)/(X>-6)

DrawF (sin(.3X)+18)/(X<20)/(X>-6)

DrawF (sin(.3X)+20)/(X<20)/(X>-6)

DrawF (sin(.3X)+21)/(X<20)/(X>-6)

DrawF (sin(.3X)+23)/(X<20)/(X>-6)

DrawF (sin(.3X)+24)/(X<20)/(X>-30)

DrawF -.127(X-30)<sup>2</sup>+12

Line(-30,26,-30,-31)

Line(-31,26,-31,-31)

Line(-6,22,-6,13)

DrawF -.08(X-30)<sup>2</sup>+18

Line(-5,-5,-5,-31)

Line(-15,-5,-15,-31)

DrawF (X+10)/(X>-15)/(X<-9)

DrawF (-X-10)/(X>-11)/(X<-5)

DrawF  $\sqrt{81-(X-40)^2}+30$

Line(-2,-10,-2,-31)

Line(5,-10,5,-31)

DrawF -10/(X>-2)/(X<5)

Line(19,22,19,7)

Line(8,0,8,-20)

DrawF 0/(X<15)/(X>8)

Line(15,-19,15,-31)

Line(18,-13,18,-31)

Line(25,-13,25,-31)

Line(27,-11,27,-31)

Line(37,-11,37,-31)

DrawF (-abs(X-32)-5)/(X<38)/(X>26)

DrawF -13/(X<25)/(X>17)

Line(41,-5,41,-31)

Line(41,-5,41,-31)

Line(-19,0,-19,-31)

Line(-25,0,-25,-31)

DrawF 0/(X<-18)/(X>-26)

Line(-27,-9,-27,-31)

Line(-34,-9,-34,-31)

DrawF -9/(X>-35)/(X<-26)

Line(-36,-4,-36,-31)

Line(-42,-4,-42,-31)

DrawF -4/(X>-43)/(X<-35)

Line(-45,-14,-45,-31)

DrawF -14/(X<-44)

Line(-28,22,-28,22)

Line(-28,20,-28,20)

Line(-28,18,-28,18)

Line(-28,16,-28,16)

Line(-28,14,-28,14)

Line(-26,21,-26,21)

Line(-26,19,-26,19)

Line(-26,17,-26,17)

Line(-26,15,-26,15)

Line(-24,22,-24,22)

Line(-24,20,-24,20)

Line(-24,18,-24,18)

Line(-24,16,-24,16)

Line(-24,14,-24,14)

Line(-22,21,-22,21)

Line(-22,19,-22,19)

Line(-22,17,-22,17)

Line(-22,15,-22,15)

Line(-20,23,-20,23)

Line(-20,21,-20,21)

Line(-20,19,-20,19)

Line(-20,17,-20,17)

Line(-20,15,-20,15)

Line(-18,23,-18,23)

Line(-18,21,-18,21)

Line(-18,19,-18,19)

Line(-18,17,-18,17)

Line(-16,24,-16,24)

Line(-16,22,-16,22)

Line(-16,20,-16,20)

Line(-16,18,-16,18)

Line(-16,16,-16,16)

Line(-14,23,-14,23)

Line(-14,21,-14,21)

Line(-14,19,-14,19)

Line(-14,17,-14,17)

Line(-12,23,-12,23)

Line(-12,21,-12,21)

Line(-12,19,-12,19)

Line(-12,17,-12,17)

Line(-12,15,-12,15)

Line(-10,22,-10,22)

Line(-10,20,-10,20)

Line(-10,18,-10,18)

Line(-10,16,-10,16)

Line(-8,22,-8,22)

Line(-8,20,-8,20)

Line(-8,18,-8,18)

Line(-8,16,-8,16)

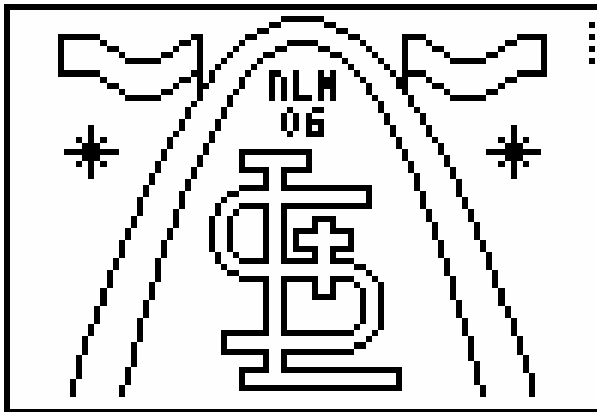
Line(-8,14,-8,14)

Text(1,1,"BB")

Text(1,10,"5-05")

Pause:ClrDraw

AxesOn:ZStandard



```
ClrHome:ClrDraw:GridOff:AxesOff
```

```
-4.7→Xmin:4.7→Xmax
```

```
-3.1→Ymin:3.1→Ymax
```

```
Radian
```

```
DrawF
```

```
((abs(X+3.5))+.9)/((X<-3.2)(X>-3.8))
```

```
DrawF -((abs(X+3.5))-  
.9)/((X<-3.2)(X>-3.8))
```

```
Line(3.3,.7,3.7,1.1)
```

```
Line(3.3,1.1,3.7,.7)
```

```
Line(-3.5,0.5,-3.5,1.3)
```

```
Line(3.5,.5,3.5,1.3)
```

```
Line(-3.9,.9,-3.1,.9)
```

```
Line(3.9,.9,3.1,.9)
```

```
DrawF (-.420X2+3.1)
```

```
DrawF (-.650X2+2.7)
```

```
DrawF
```

```
(.25(sin(3X))+2.6)/((X<-1.7)(X>-4))
```

```
DrawF
```

```
(.25(sin(3X))+2.0)/((X<-1.7)(X>-4))
```

```
DrawF
```

```
(.25(cos(3X+1.1))+2.0)/((X>1.7)(X<4))
```

```
DrawF
```

```
(.25(cos(3X+1.1))+2.6)/((X>1.7)(X<4))
```

```
Line(-4.0,2.2,-4,2.8)
```

```
Line(4,2.2,4,2.8)
```

```
Line(-1.7,2.0,-1.7,2.8)
```

```
Line(1.7,2,1.7,2.8)
```

```
Line(1,-1.4,1,-1.9)
```

```
Line(1.3,-1.4,1.3,-1.9)
```

```
Line(-1.0,-3.0,1.6,-3.0)
```

```
Line(-1.0,-3.0,-1.0,-2.7)
```

```
Line(-1.0,-2.7,-0.6,-2.7)
```

```
Line(-0.3,-2.7,-0.3,-2.4)
```

```
Line(-0.6,-2.7,-0.6,-2.4)
```

```
Line(1.6,-3.0,1.6,-2.7)
```

```
Line(1.6,-2.7,-0.3,-2.7)
```

```
Line(-1.3,-2.4,-.6,-2.4)
```

```
Line(-1.3,-2.4,-1.3,-2.1)
```

```
Line(-1.3,-2.1,-0.6,-2.1)
```

```
Line(-0.6,-2.1,-0.6,-1.3)
```

```
Line(-0.3,-2.1,-0.3,-1.3)
```

```
Line(-.3,-.9,-.3,.0)
```

```
Line(-.6,-.9,-.6,.0)
```

```
Line(-.6,.6,-.6,.3)
```

```
Line(-.3,.3,-.3,.6)
```

```
Line(-.3,.3,1.1,.3)
```

```
Line(-.6,.6,-1,.6)
```

```
Line(-.3,.6,.1,.6)
```

```
Line(.1,.6,.1,.9)
```

```
Line(-1,.6,-1,.9)
```

```
Line(-1,.9,.1,.9)
```

```
Line(1.1,.3,1.1,0)
```

```
Line(1.1,0,-.3,0)
```

```
Line(-.6,.3,-.8,.3)
```

```
Line(-.6,0,-.8,0)
```

```
Line(-.6,-.9,-.8,-.9)
```

```
Line(-.6,-1.2,-.8,-1.2)
```

```
DrawF (√((.75)2-(X+.8)2)-.45)/(X<-.8)
```

```
DrawF (-√((.75)2-(X+.8)2)-
```

```
.45)/(X<-.8)
```

```
DrawF (√((.45)2-(X+.8)2)-.45)/(X<-.8)
```

```
DrawF (-√((.45)2-(X+.8)2)-
```

```
.45)/(X<-.8)
```

```
Line(-.3,-2.1,.6,-2.1)
```

```
Line(-.3,-2.4,.6,-2.4)
```

```
Line(-.3,-1.2,.2,-1.2)
```

```
Line(.5,-1.2,.5,-1.5)
```

```
Line(.2,-1.5,.5,-1.5)
```

```
Line(.2,-1.5,.2,-1.2)
```

```
Line(.5,-1.2,.6,-1.2)
```

```
Line(-.3,-.9,.2,-.9)
```

```
Line(.2,-.9,.2,-.7)
```

```
Line(.2,-.7,-.1,-.7)
```

```
Line(-.1,-.7,-.1,-.4)
```

```
Line(-.1,-.4,.2,-.4)
```

```
Line(.2,-.4,.2,-.2)
```

```
Line(.2,-.2,.5,-.2)
```

```
Line(.5,-.2,.5,-.4)
```

```
Line(.5,-.4,.8,-.4)
```

```
Line(.8,-.4,.8,-.7)
```

```
Line(.8,-.7,.5,-.7)
```

```
Line(.5,-.7,.5,-.9)
```

```
Line(.5,-.9,.6,-.9)
```

```
DrawF (√((.75)2-(X-.6)2)-1.65)/(X>.6)
```

```
DrawF (-√((.75)2-(X-.6)2)-
```

```
1.65)/(X>.6)
```

```
DrawF (√((.45)2-(X-.6)2)-1.65)/(X>.6)
```

```
DrawF (-√((.45)2-(X-.6)2)-
```

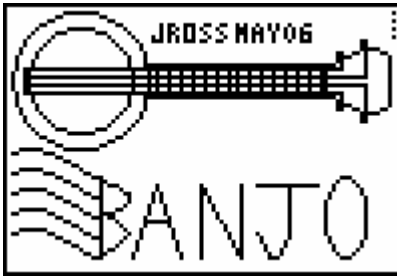
```
1.65)/(X>.6)
```

```
Line(-1.5,-.2,-1.5,-.7)
```

```
Line(-1.2,-.2,-1.2,-.7)
```

```
Text(8,42,"NLH"):Text(14,44,"06")
```

```
Pause:ClrDraw:AxesOn:ZStandard
```



```

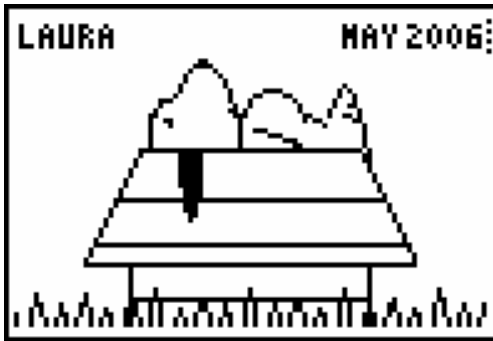
ClrHome
ClrDraw
Degree
GridOff
AxesOff
-4.7→Xmin
4.7→Xmax
-3.1-1.4→Ymin
3.1-1.4→Ymax
DrawF  $\sqrt{(1.7^2 - (X+3)^2)}$ 
DrawF  $-\sqrt{(1.7^2 - (X+3)^2)}$ 
DrawF  $(.1 / ((X < 2.8) (X > -4.5)))$ 
DrawF  $(-.1 / ((X < 2.8) (X > -4.5)))$ 
DrawF  $(.3 / ((X < 2.8) (X > -4.5)))$ 
DrawF  $(-.3 / ((X < 2.8) (X > -4.5)))$ 
DrawF  $(\sqrt{(1.3^2 - (X+3)^2}))$ 
DrawF  $(-\sqrt{(1.3^2 - (X+3)^2}))$ 
DrawF
(((.2sin(-15ØX) / ((X > 2.63) (X < 4.7))) +
Ø.59))
DrawF
(((.2sin(-15ØX) / ((X > 2.63) (X < 4.7))) -
Ø.59))
Line(4.7, -.6, 4.7, .6)
DrawF  $(.4 / ((X > -1.4) (X < 2.7)))$ 
DrawF  $(-.4 / ((X > -1.4) (X < 2.7)))$ 
Line(-4.4, .3, -4.4, -.3)
Line(3.4, .7, 3.4, .5)
Line(3.5, .7, 3.5, .5)
Line(3.4, -.7, 3.4, -.5)
Line(3.5, -.7, 3.5, -.5)
Line(4, 1, 4, .8)
Line(4.1, 1, 4.1, .8)
Line(4, -1, 4, -.8)
Line(4.1, -1, 4.1, -.8)
Pt-On(3.4, .3)
Pt-On(3.4, -.3)
Pt-On(4, .1)
Pt-On(4, -.1)
Line(3.5, .5, 3.5, .3)
Line(3.4, .3, 2.7, .3)
Line(4.1, .7, 4.1, .1)
Line(4, .1, 2.7, .1)
Line(3.5, -.5, 3.5, -.3)

```

```

Line(3.4, -.3, 2.7, -.3)
Line(4.1, -.7, 4.1, -.1)
Line(4, -.1, 2.7, -.1)
Line(3.1, .3, 3.1, -.3)
Line(3, .3, 3, -.3)
Line(2.7, .3, 2.7, -.3)
Line(2.4, .3, 2.4, -.3)
Line(2.1, .3, 2.1, -.3)
Line(1.8, .3, 1.8, -.3)
Line(1.5, .3, 1.5, -.3)
Line(1.2, .3, 1.2, -.3)
Line(.9, .3, .9, -.3)
Line(.7, .3, .7, -.3)
Line(.4, .3, .4, -.3)
Line(.1, .3, .1, -.3)
Line(-.2, .3, -.2, -.3)
Line(-.5, .3, -.5, -.3)
Line(-.8, .3, -.8, -.3)
Line(-1.1, .3, -1.1, -.3)
DrawF  $(.4\cos(85X+.5) - 2.1) / (X < -2.4)$ 
DrawF  $(.4\cos(85X+.5) - 2.6) / (X < -2.4)$ 
DrawF  $(.4\cos(85X-.5) - 3.1) / (X < -2.4)$ 
DrawF  $(.4\cos(85X-.5) - 3.6) / (X < -2.4)$ 
DrawF  $(.4\cos(85X-.5) - 4.1) / (X < -2.4)$ 
Line(-2.5, -2.5, -2.5, -4.4)
DrawF  $((.6\sqrt{-X-1.71}) - 3.Ø2) / (X > -2.5)$ 
DrawF  $((-.6\sqrt{-X-1.71}) - 2.85) / (X > -2.5)$ 
Pt-On(-1.8, -2.9)
DrawF  $((.8\sqrt{-X-1.71}) - 4) / (X > -2.5)$ 
DrawF  $((-.8\sqrt{-X-1.71}) - 3.6) / (X > -2.5)$ 
DrawF  $((-3\text{abs}(X+1.1) - 2.6) / ((X > -1.71) (X < -.48)))$ 
Line(-1.4, -3.5, -.8, -3.5)
Line(Ø, -2.6, Ø, -4.4)
Line(1, -2.6, 1, -4.4)
Line(Ø, -2.6, 1, -4.4)
Line(1.4, -2.6, 2.9, -2.6)
DrawF  $((4(X-1.8)^2 - 4.4) / ((X > 1.3) (X < 2.3)))$ 
Line(2.2, -2.6, 2.2, -3.8)
DrawF  $((2.5(X-3.6)^2 - 4.4) / ((X > 3) (X < 4.2)))$ 
DrawF  $((-2.5(X-3.6)^2 - 2.4) / ((X > 3) (X < 4.2)))$ 
Line(3.1, -3.8, 3.1, -3.1)
Line(4.1, -3.1, 4.1, -3.8)
Text(2, 35, "JROSS MAYØ6")
Pause
ClrDraw
AxesOn
ZStandard

```



```

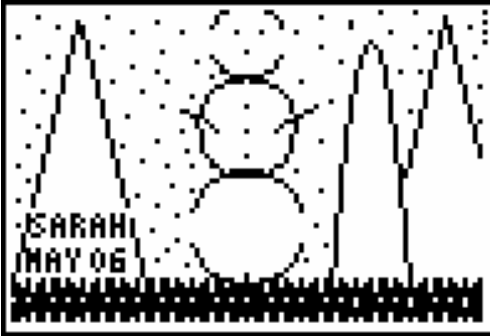
ClrHome
ClrDraw
GridOff
AxesOff
-4.7(2.1)→Xmin
4.7(2.1)→Xmax
-3.1(2.1)→Ymin
3.1(2.1)→Ymax
DrawF -8
Line(-5,-4,-5,-8)
Line(5,-4,5,-8)
DrawF (-4)/((X>-7)(X<7))
DrawF (2X+10)/((X>-7)(X<-4.5))
DrawF (-2X+10)/((X>4.5)(X<7))
DrawF (.75)/((X>-4.5)(X<4.5))
DrawF
(6.2((X+3.5)^3)+3)/((X>-4.1)(X<-3.25))
Line(-4.1,2.4,-4.1,.75)
DrawF
((-X+2)^2)+4.5)/((X>-3.25)(X<-.5))
DrawF (.5(√(-X))+2)/((X>-1)(X<0))
DrawF 1+√(1.75-(X-1)^2)+1
DrawF
((√(-X+4))+1)/((X>2.25)(X<3.25))
DrawF (3(-X-4)^2)+3.5)/((X>3.2)(X<5.045))
Line(-.5,2,-.5,.75)
Pt-On(-3.5,2)
Pt-On(-3.4,2)
Pt-On(-3.45,1.95)
DrawF
(.5√(-X+2)+1)/((X>0)(X<2.25))
Pt-On(-2,4.6)
Pt-On(-1.9,4.6)
DrawF 1+√(.25-(X-2)^2)-.5
DrawF ((10(X+2.5)^2)-2)/((X>-3.09)(X<-1.9))

```

```

Shade(((10(X+2.5)^2)-2)/((X>-3.09)(X<-1.9)),.75)/((X>-4.5)(X<4.5))
DrawF -1.25/((X>-5.6)(X<5.6))
DrawF -3.25/((X>-6.6)(X<6.6))
DrawF -5.5/((X>-5)(X<5))
DrawF
(.5√(-X+4.35)+2.5)/((X>4)(X<4.35))
DrawF
(.5√(-X+4.5)+2)/((X>3.9)(X<4.5))
DrawF -5(abs(X+6))-5.5
DrawF -5(abs(X+7))-5
DrawF -5(abs(X+8))-5.5
DrawF -5(abs(X+9))-5
DrawF -5(abs(X+10))-5.5
DrawF -5(abs(X+5))-5
DrawF -5(abs(X-5))-5.5
DrawF -5(abs(X-6))-5
DrawF -5(abs(X-7))-5.5
DrawF -5(abs(X-8))-5
DrawF -5(abs(X-9))-5.5
DrawF -5(abs(X-10))-5
DrawF -5(abs(X+4))-5
DrawF -5(abs(X+3))-5.5
DrawF -5(abs(X+2))-5
DrawF -5(abs(X+1))-5.5
DrawF -5(abs(X))-5
DrawF -5(abs(X-1))-5.5
DrawF -5(abs(X-2))-5
DrawF -5(abs(X-3))-5.5
DrawF -5(abs(X-4))-5
Text(1,1,"LAURA")
Text(1,66,"MAY 2006")
Pause
ClrDraw
AxesOn
ZStandard

```



```

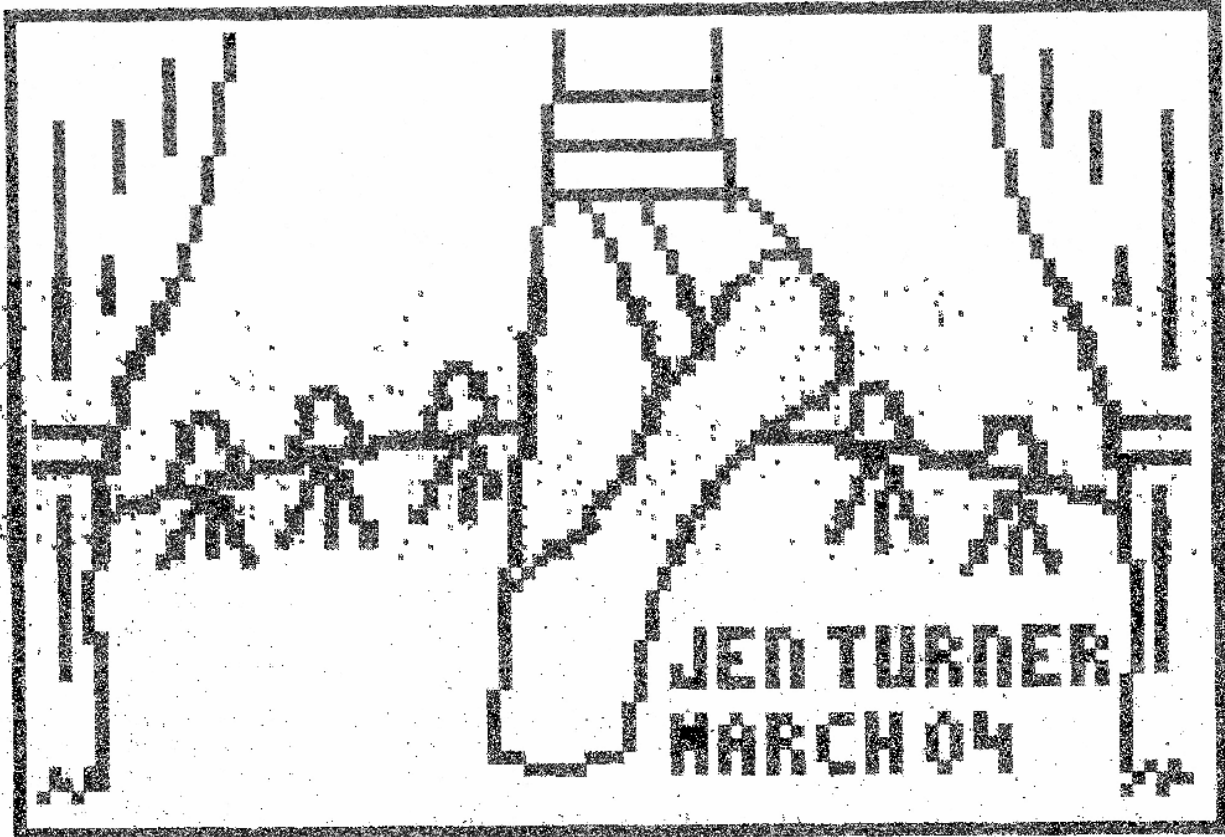
ClrHome:ClrDraw:GridOff:AxesOff
Radian
-9.4→Xmin:9.4→Xmax:-6.2→Ymin:6.2→Ymax
DrawF  $-\sqrt{(2^2-X^2)+1.5}$ 
DrawF  $\sqrt{(2^2-X^2)+1.5}$ 
DrawF  $\sqrt{(1.5^2-X^2)+5}$ 
DrawF  $-\sqrt{(1.5^2-X^2)+5}$ 
DrawF  $\sqrt{(2.3^2-X^2)-2.5}$ 
DrawF  $-\sqrt{(2.3^2-X^2)-2.5}$ 
DrawF  $-\text{abs}(4X+27)+6/((X<-3.8)(X>-9.8))$ 
DrawF  $-(2X-10)^2+5/((X>3.2)(X<6.7))$ 
Pt-On(-.4,5.4)
Pt-On(.6,5.4)
Pt-On(0,4.6)
Pt-On(0,2.4)
Pt-On(0,1.4)
Pt-On(0,.4)
DrawF  $(\log(X-1)+2)/((X>-2.7)(X<-.3))$ 
DrawF  $(\log(-X-1)+2)/((X>-2.7)(X<-.3))$ 
DrawF  $-\text{abs}(4X-32)+6/((X>6.2)(X<10))$ 
DrawF  $-\cos(-10X)-5.5$ 
DrawF  $\cos(-10X)-5.5$ 
Pt-On(3,1)
Pt-On(3.4,2.6)
Pt-On(3.8,4.2)
Pt-On(4.2,5.8)
Pt-On(5.8,5.4)
Pt-On(6.2,3.8)
Pt-On(6.6,2.2)
Pt-On(7,3.8)
Pt-On(7.4,5.4)
Pt-On(6.8,6.2)
Pt-On(6.8,4.8)
Pt-On(9.2,4.4)
Pt-On(9.4,3.2)
Pt-On(9.4,1.8)
Pt-On(9,5.6)
Text(40,4,"SARAH")
Text(47,3,"MAY 06")
DrawF  $\sqrt{(X-1)+1/((X>1)(X<3))}$ 
Pt-On(2.2,3.4)
Pt-On(3,4.8)
Pt-On(4.2,5.6)
Pt-On(2,5.4)
Pt-On(2,-.2)
Pt-On(3,-1)
Pt-On(2.8,-2.4)
Pt-On(2.4,-3.8)
Pt-On(3.2,-3.2)
Pt-On(-9.2,-2.4)

```

```

Pt-On(-8.8,-.6)
Pt-On(-9.2,0)
Pt-On(-8.4,1.6)
Pt-On(-9,2.2)
Pt-On(-8.2,3)
Pt-On(-8.8,3.8)
Pt-On(-8,4.4)
Pt-On(-9.2,5.2)
Pt-On(-7.6,5.6)
Pt-On(-9.7,-1.4)
Pt-On(-8.8,.8)
Pt-On(-9.2,-1.4)
Pt-On(-8.4,6)
Pt-On(-5.6,6)
Pt-On(-5.8,4.8)
Pt-On(-4.6,5.4)
Pt-On(-4.6,4)
Pt-On(-3.4,4.6)
Pt-On(-5.4,3.4)
Pt-On(-3.6,3.8)
Pt-On(-3.6,5.8)
Pt-On(-2.6,5.4)
Pt-On(-2,4.2)
Pt-On(-1.4,3.6)
Pt-On(-3.2,3.4)
Pt-On(-4.2,3)
Pt-On(-4.8,2)
Pt-On(-2.2,2.8)
Pt-On(-2.4,-4)
Pt-On(-3.6,-3.8)
Pt-On(-3.2,-3.4)
Pt-On(-2.8,-3)
Pt-On(-3.4,2.4)
Pt-On(-2.6,1.4)
Pt-On(-5,.8)
Pt-On(-3.6,1)
Pt-On(-3.8,-2.6)
Pt-On(-2.8,-2)
Pt-On(-2.2,0)
Pt-On(-2.2,-1)
Pt-On(-3.6,-1.6)
Pt-On(-4.4,-1.2)
Pt-On(-4.2,.2)
Pt-On(-2.4,.6)
Pt-On(-3.2,0)
Pt-On(-3,-.8)
Pt-On(3,6)
Pt-On(5.4,6.2)
Pause
ClrDraw:AxesOn:ZStandard

```



```

ClrHome
ClrDraw
AxesOff
4.7*-2-Xmin
4.7*2-Xmax
1-Xsc1
3.1*8-Ymin
3.1*2-Ymax
1-Ysc1
DrawF (ln(X)+2)/(X<8.8)
DrawF ((1/7)(X+1)^+2)/((X<8)(X<2))
DrawF (4.5X+18)/(X<2)
DrawF (sqrt(1-(X-8.8)^2)+3.4)/(X<8.8)
DrawF (-.5X+8)/(X<8.2)(X<2.1)
DrawF (-ln(-3X+4)+3.8)/(X<8.8)(X<1.8)
DrawF (-5.8X/6)/(X<2)
DrawF 4.8/(X<2)(X<1)
DrawF 5.5/(X<1.8)(X<.8)
DrawF 8.7/(X<1.8)(X<.8)
DrawF (.7X+2.7)/(X<8.8)(X<8.8)
DrawF (-1.2X+4.4)/(X<8.8)(X<.4)
DrawF (-1.2X+6.5)/(X<1.7)(X<.5)
DrawF ((-2/288)X^3+8)/(X<1.5)(X<8.4)
DrawF ((-2/288)X^3+8)/(X<2.5)(X<8.4)
DrawF sqrt(.5^2-(X-4.3)^2)+2.8
DrawF sqrt(.5^2-(X-8.8)^2)+2.88
DrawF sqrt(.5^2-(X+2.5)^2)+3
DrawF sqrt(.5^2-(X+4.7)^2)+2.8
DrawF sqrt(.3^2-(X+8.7)^2)+2.8
DrawF (-abs(X-4.3)+2.8)/((X<2.5)(X<8))
DrawF (-abs(X-8.8)+2.8)/((X<2.8)(X<7.2))
DrawF (-abs(X+2.5)+3)/((X<2)(X<3.2))
DrawF (-abs(X+4.7)+2.8)/((X<4)(X<5.4))
DrawF (-abs(X+8.7)+2.8)/((X<6)(X<7.4))
Line(4.3,2,4.3,2.4)

```

```

Line(8.5,1.8,8.5,2.1)
Line(-2.5,2.3,-2.5,2.8)
Line(-4.7,2.5,-4.7,2.1)
Line(-6.7,2.4,-6.7,2)
DrawF (tan(X+1.1)+4)/((X<8.1)(X<8.7))
DrawF (tan(X+1.1)+4)/((X<8)(X<8.7))
Line(8.4,.7,8.5,1.3)
Line(-8.5,.7,-8.5,1.3)
Line(8.3,.7,8.3,.2)
Line(-8.4,.7,-8.4,.2)
DrawF (.1cos(11X)+1)/(X<8.4)
DrawF (.1sin(11X)+1)/(X<8.8)
DrawF 8/(X<8.2)
DrawF 3/(X<8.2)
DrawF 2.7/(X<8.2)
DrawF 2.7/(X<8.2)
Line(7.2,5.3,7.2,8)
Line(7.2,5.3,7.2,8)
Line(8.5,8,8,8)
Line(8.5,8,8,8)
Line(8.1,3.5,8.1,3.5)
Line(8.1,3.5,8.1,3.5)
Line(8.3,4,8.3,4.4)
Line(-8.3,4,-8.3,4.4)
Line(8.2,4,8,1)
Line(-8,2,4,-8,1)
Text(48,52,"JEN TURNER")
Text(56,52,"MARCH 04")

```