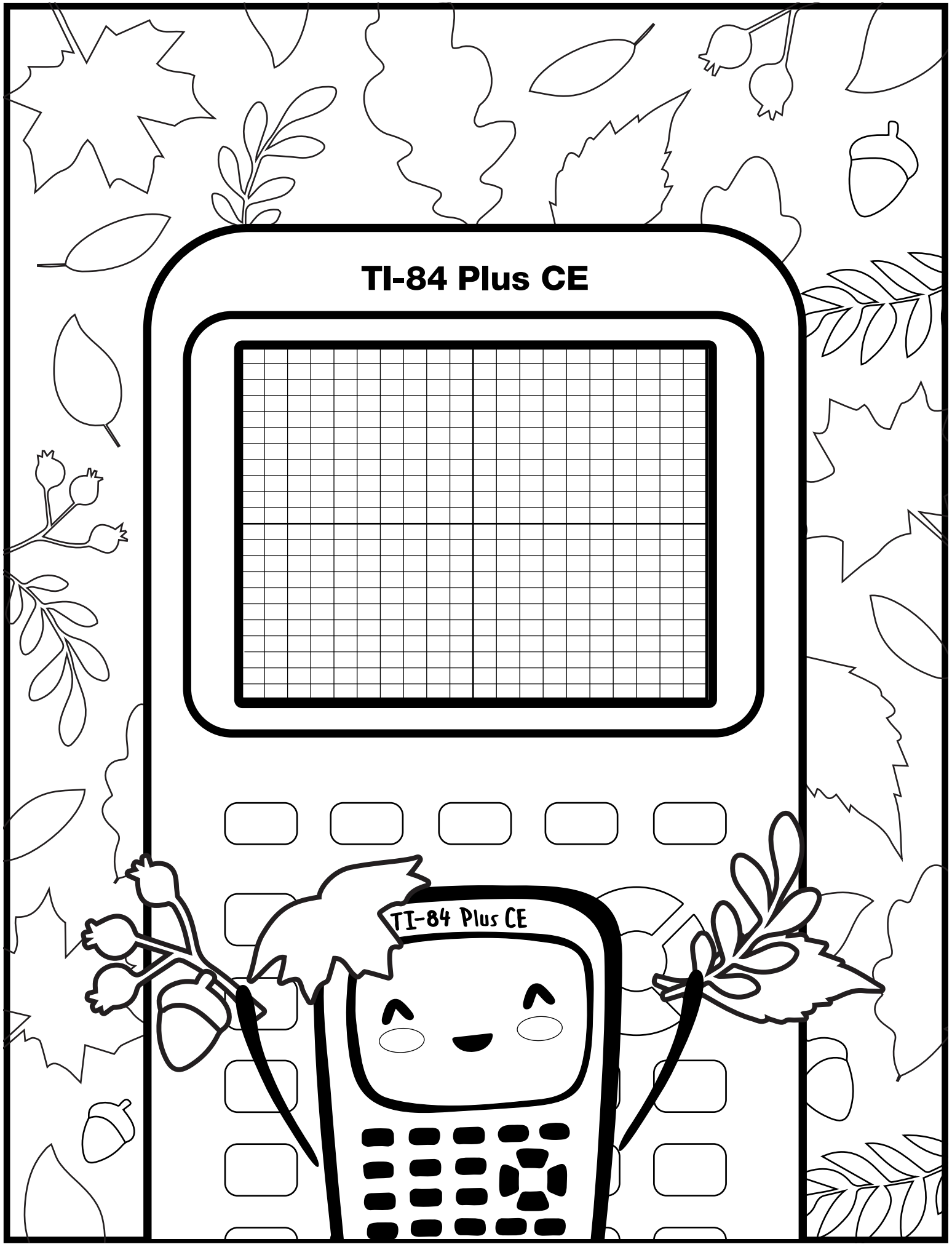

TI-84 Plus CE
TI-84 Plus CE

Use the equations and color key sheet to draw a secret image on the graph.

Orange

$$f(x) \leq \begin{cases} -\frac{1}{8}(x+7)^2 + 9; & -7 < x < 1 \end{cases}$$

$$f(x) = \begin{cases} \frac{12}{25}(x+2)^2 - 3; & -7 < x < -2 \\ \frac{4}{9}(x+2)^2 - 3; & -2 < x < 1 \end{cases}$$

Red

$$f(x) \leq \begin{cases} -\frac{7}{36}(x-5)^2 + 9; & -1 < x < 5 \end{cases}$$

$$f(x) = \begin{cases} \frac{1}{8}(x-3)^2; & -1 < x < 3 \\ \frac{9}{4}(x-3)^2; & 3 < x < 5 \end{cases}$$

Brown

$$f(x) \geq \begin{cases} 5(x+4)^2 - 9; & -5 < x < -4 \\ \frac{4}{9}(x+4)^2 - 9; & -4 < x < -1 \end{cases}$$

$$f(x) = \begin{cases} -\frac{2}{3}(x+2)^2 + 2; & -5 < x < -2 \\ -7(x+2)^2 + 2; & -2 < x < -1 \end{cases}$$

$$f(x) = \begin{cases} (x+7)^2 + 9; & -8 < x < -7 \\ (x+5)^2 - 10; & -5 < x < -4 \\ 2(x+4)^2 - 7; & -4 < x < -2 \\ -\frac{4}{9}(x-4)^2 + 7; & 1 < x < 4 \\ -(x-6)^2 + 10; & 5 < x < 6 \end{cases}$$

$$f(x) = \begin{cases} -\frac{6}{25}(x+6)^2 + 7; & -6 < x < -1 \end{cases}$$

Next, graph the equations on your calculator using the Inequalities Application. How do your images compare?

Graph your work

For the background:

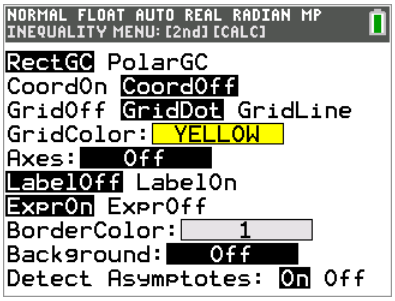
format

2nd zoom f3

Toggle to and select CoordOff

Toggle to and select GridDot. Select YELLOW for GridColor.

Toggle to Axes and select Off.



Next, turn on the Inequalities Application: angle B apps Select: 5: Inequalz

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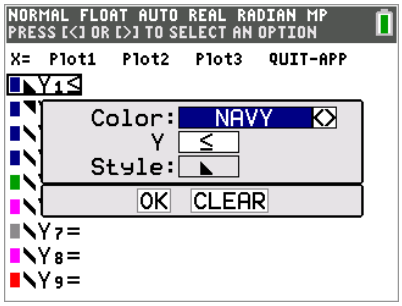
Enter equations into the stat plot f1 y= screen

To change colors and inequality symbols: Arrow left until the desired Yx = line is outlined with a box. Press enter.

Hint: pay attention to the inequality symbols.

Use the dialogue box to select settings.



To enter multiple functions in a Yx = row, use the piecewise template: test A math Select: B: piecewise(

Use dialogue box to select quantity of pieces per Yx = line.

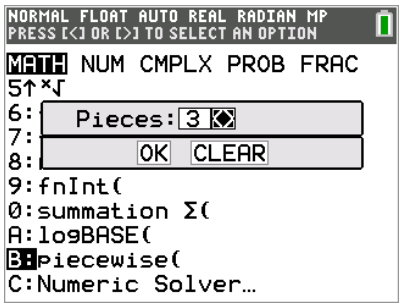


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table f5

graph your work when all math is entered. Double check your equations.

Leaves - teacher notes

Hidden image reveal: Overlapping falling leaves! Share this image with your students when you see fit.

Reminders: Take note of the inequality symbols on Yx lines to get the proper shaded in areas to produce the designs.
When entering multiple functions per Yx line, use the piecewise template.

Experiment! Using color, line and background settings, how could students make the image their own?
How could they alter the math to make their own designs?