1) **Graphing a Function (linear, quadratic, exponential or absolute value)**
    a. Press y= and enter as many functions as you wish to graph
    b. Press graph to see the actual graphs
    c. Press 2nd then graph (table) to view the table of values
    d. Press zoom to adjust the view of the graph.
        i. #6 will always take you back to a normal 10x10 grid
        ii. #0 is the option for making the graph fit the data
        iii. #9 is used to see a statistics graph (scatter or residual)
    e. Press window to manually change the x or y-axis to fit the data or region you want to view. This is very helpful when graphing a select interval

2) **Entering x/y values from a table or graph to find the equation of the function**
    a. Press stat, then edit. Enter all of your x-values in L1 and your y-values in L2
    b. If you need to clear your lists from a prior problem, go up to highlight the L1 or L2, then press CLEAR and ENTER. This will erase the information
    c. Once you've entered the data, you will go to STAT, go across to CALC and pick your option based on the type of function
        i. For linear, choose option #4 LinReg(ax+b). Depending on the model of the calculator you have, you may enter once or more until it calculates the data providing you with the a-value and the b-value. The a-value is the m or slope of your equation. The b-value is your y-intercept
        ii. For quadratic, choose option #5 QuadReg. Again depending on your model will depend on the number of times you press enter. The calculator provides you the a, b and c values for your ax^2+bx+c quadratic function
        iii. For exponential, choose option #0 ExpReg. Enter as many times as necessary. This provides you with an a and b value to place into $y=a*b^x$

3) **Plotting Scatter Plots, Finding the Line of Best Fit and Calculating the Correlation Coefficient**
    a. Make sure your diagnostics are ON. Do this by pressing 2nd then 0 (catalog). Scroll down to DIAGNOSTIC ON, press enter twice until you see DONE appear
    b. Next go to STAT, EDIT and enter your data into your lists. See above for steps to clear the lists. Once you have entered all the data, you can calculate the line of best fit by following steps 2ci from above which show how to calculate LinReg. One addition will be the R value value which appears on that screen. This is your correlation coefficient. Remember the closer

to 1 or -1, the stronger the line of best fit and the closer to zero it is, the weaker the line is for reliability

   c. To view the graph, you enter 2nd then y= to enter the STAT PLOT screen. You must turn on the first stat plot which will enable you to graph scatter plots

   d. Next you go to zoom and choose option #9 for zoomstat to see this scatter plot. If you wish to also graph a line of best fit, you can enter that into the y= to have it appear between your plots

   e. When you are done, remember to go back and undo step 3c, which is to turn off your statplot otherwise you can't graph a normal function. Also you need to hit zoomstandard which is option #6 to return to a 10x10 grid

4) **Finding the zeros of a quadratic function**

   a. Enter a quadratic equation into the y= screen

   b. Press 2nd Trace (Calc) then option 2 ZERO

   c. Move the spider monkey to the left bound (Left side of the point where the graph intersects the x-axis) and then press enter. Use right/left arrows to move the spider monkey

   d. Move the spider monkey to the right bound (Right side of the point where the graph intersects the x-axis) and then press enter. Use right/left arrows to move the spider monkey

   e. Just push Enter for the Guess and your point should appear with an x and y value

   f. Repeat these same steps for the other point where the graph crosses the x-axis if there are 2 roots

5) **Finding the minimum or maximum value of a quadratic**

   a. Enter a quadratic equation into the y= screen

   b. Press 2nd Trace (Calc) then option 3 Minimum or 4 Maximum depending on if the x^2 is positive (min) or negative (max)

   c. Move the spider monkey to the left side of the max or min point and press enter for the left bound

   d. Move the spider monkey to the right side of the max or min point and press enter for the right bound

   e. Press enter for the Guess and your point will appear with an x and y value

6) **Locating points of intersection between two functions**

   a. Enter a quadratic equation into the y= screen

   b. Press 2nd Trace (Calc) then option 5 INTERSECT

   c. Move the spider monkey near the point of intersection and press enter (this is your first curve)

d. The spider monkey automatically jumped to the other function so just press ENTER (this is your second curve)

e. Hit ENTER for the guess and your point will appear giving you an x and y value for the point of intersection

7) Graphing Inequalities and Shading the Solution set

a. Enter the function(s) into y= as you normally would.

b. Arrow to the left for each y= and you need to adjust the dashed line at the left by pressing enter to get the correct shape for your problem. When you have a lower arrow shaded in the bottom left, that is < or ≤. When you have an upper arrow shaded in the top right, that is for > or ≥.

c. Remember that the line won't show up as dashed or solid, you still need to understand that.

d. Press graph and your solution set will be shaded in.

8) Calculating Mean, Median, and Quartile Ranges for Box and Whisker Plot

a. Make sure your diagnostics are ON. Do this by pressing 2nd then 0 (catalog). Scroll down to DIAGNOSTIC ON, press enter twice until you see DONE appear

b. Next go to STAT, EDIT and enter your data into your lists. See above for steps to clear the lists. Enter your data into L1.

c. Press STAT, go across to CALC and choose option 1 (1-Var Stats).

d. The x with the line above it represents the MEAN or the average.

e. The n= represents how many pieces of data you started with and helps to ensure you didn't forget to enter one.

f. Keep scrolling down to get the Min, Q1, Med (median), Q3 and Max.

9) Graphing a Box and Whisker Plot

a. Follow step 7 to get all the information you would need to know the points of emphasis.

b. Press 2nd, then Stat Plot, enter for Plot 1, go down to Type and arrow across until you get to the fifth picture (middle of the 2nd row). The X-list should say L1.

c. Hit zoom 9 (zoomstat) to see the picture on the graph. This will only help you to see what your picture should look like, but you should still graph it manually to ensure accuracy.

d. When you are done, remember to turn off your statplot otherwise you won't be able to graph any normal functions the remainder of the exam.

10) **General Calculator Reminders/Functions**

a. To enter a fraction, you can either use parenthesis to create a fraction (division) such as (2/18), or if you have one of the new calculators simply press ALPHA then y= and choose option 1 (n/d) which will give you a fraction

b. To convert a decimal answer to a fraction, choose math, then option 1 FRAC and it will provide you a fraction in lowest terms

c. To enter a cube root, again choose MATH, option #4

d. For absolute values, enter MATH, then go across to NUM and pick option 1 abs

e. To round a decimal to a certain number of places, enter MATH, then go across to NUM and pick option 2 round(. Enter the long decimal, then a comma and then how many decimal places you need followed by closing the parenthesis and then ENTER. Example: round(4.56789, 2) will provide an answer rounded to the nearest hundredth of 4.57

f. To raise anything to an exponent larger than 2, you can you the ^ then enter the exponent. Example: 4^5 would be entered as 4^5 enter to get 1024

g. If your calculator becomes stuck and won't do anything, hit 2nd, + (mem), 7 reset, 1 All RAM, 2 reset, enter until it says all RAM CLEARED