Calculator Proficiency Test
Math 25L, 31L, 32L
Only students who want to use a calculator other than the TI-83 should take this test.

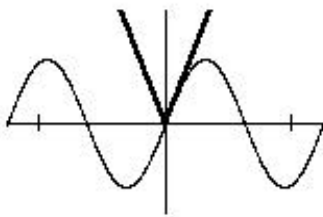*Lab Instructor:* _____   *Name:* _____

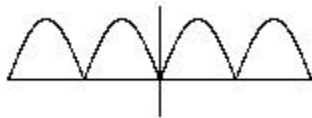*Course and Section:* _____   *Calculator make and model:* _____

Directions: Take this test outside of class and lab, on your own time. The only assistance that you may have is the use of your calculator's manual. For the entire test keep your calculator's horizontal and vertical graphing ranges set to $[-6.3, 6.3]$ and $[-2, 2]$ respectively. **After you complete this test, turn it in to your lab instructor or your classroom instructor**.

1. Set up the functions $f(x) = sin(x)$ and $g(x) = |x|$ in your calculator. Superimpose their graphs on your calculator screen. Sign below after you have produced an image similar to this:

Signature: _____

2. Without entering the function $|sin(x)|$ directly, have your calculator graph $g(f(x))$ by setting up a composition of functions. Save your setup in your calculator so you can show it to your lab instructor when you turn in this completed test. Sign below when you get the following picture:

Signature: _____

3. Solve the equation $x^5 - x^3 + 5 = 0$.
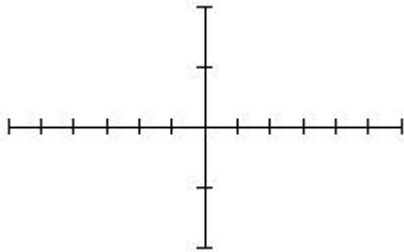Record your answer to 4 decimal places: _____

4. Enter into your calculator the function $h(x) = \frac{2^x - 1}{x}$. Compute the values of h at each of the following values of x: 0.1, 0.01, 0.001, 0.0001. Be prepared to demonstrate to your lab instructor how to compute these values, or any values of h, quickly. Record your answers below. rounded to 4 decimal places:

_____   _____   _____   _____

5. Make a scatter plot of the following data:

(over)

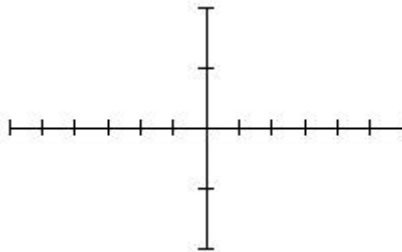| x	-5	-2	-1	-0.5	-0.2	0	0.1	0.4	1	1.5	2	3	4	6
y	-1.9	-1.4	-1	$-.7$	-0.4	0	0.3	0.6	1	1.2	1.4	1.7	1.8	1.9

After you have the scatter plot, superimpose on the same screen a graph of $y = \sqrt[3]{x}$. Make a sketch of the result below.

Save your calculator entries. Explain briefly how you could plot the points (y, y^2) without entering any new data.

6. Compute the value of the sum $\sum_{k=1}^{1200} k^2$. Write your answer here: _____

7. Enter the function $f(x) = \sum_{k=0}^{5} \frac{(-1)^k x^{2k}}{(2k)!}$ into your calculator in a format similar to this *sigma* shorthand. Graph the function, and make a sketch of the graph below. Save the setup in your calculator so you can show it to your lab instructor when you turn in this completed test.

PLEASE DO NOT WRITE BELOW THIS LINE

_____

Date reviewed:_____

Permission to use the calculator _____ is hereby ...   ____ granted.
                                                                    ____ not granted.

Signed: _____

Printed name: _____

Lab instructor for Math _____ , section _____ .