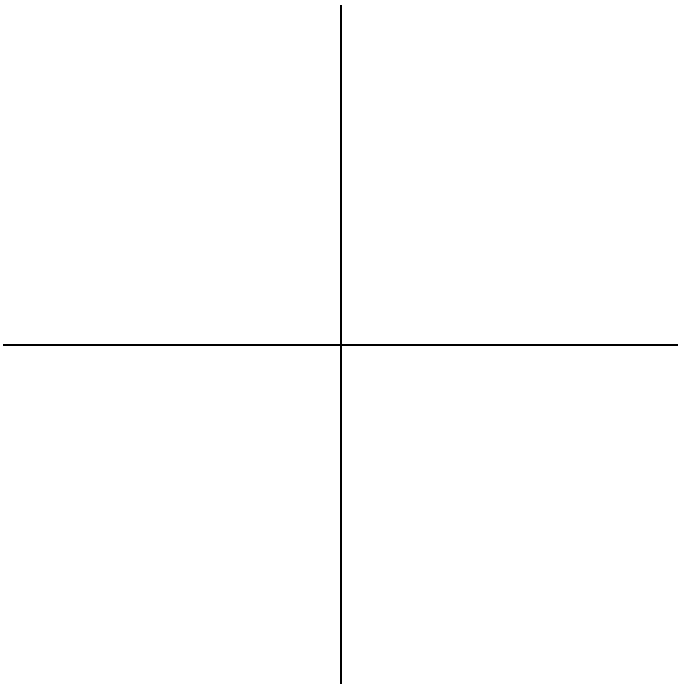
Math 126 Name_____
Exam 4
Spring s15

Show All Work
NO GRAPHING CALCULATORS

1) Sketch the graph of $f(x) = (x-2)^2(x+1)(x+3)$. Make sure your graph shows all intercepts and exhibits the proper end behavior.



2) Find the quotient and remainder using long division. $\frac{x^3+7x+5}{x^2-2x}$

3) Find the vertical and horizontal asymptotes of the following function.

$$R(x) = \frac{(x-2)}{(x+5)(x+2)}$$

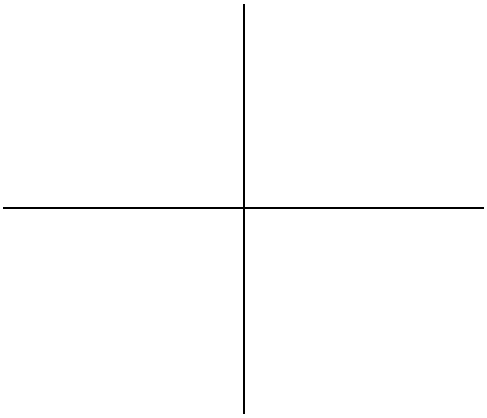
4) If $f(x) = 3^x$ find

a) f (0)

b) f (-1)

c) f (1/2)

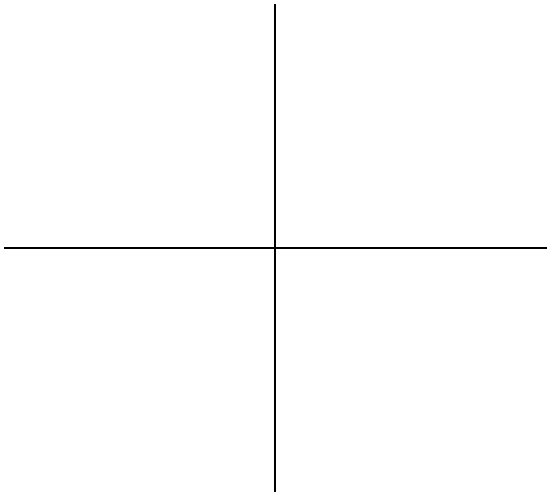
5) Graph $f(x) = 2^x - 1$



6) If $100,000 is invested at 2% per year compounded monthly, how much will be in the bank after 3 years. Recall $A(t) = P(1 + \frac{r}{n})^{nt}$

7) If f(x) = e^x what is f (3)?

8) Sketch the graph of $f(x) = e^{-x}$



9) A radioactive substance decays in such a way that the amount of mass remaining after t days is given by the function $m(t) = 12e^{-0.45t}$ where *m(t)* is measured in kilograms.

a) Find the mass at time t = 0

b) How much of the mass remains in 10 days?

10) Put $3^2 = 9$ in logarithmic form

11) Use the definition of the logarithmic function to find x.

a) $\log_2 8 = x$

b) $\log_x \frac{1}{4} = -2$

c) $\log_3 x = 4$

12) What is the domain of f(x) = ln(x + 7) ?

13) Sketch the graph of $f(x) = \ln x$