**AP Calc AB – Chapter 1 Review**

2 parts – Part 1: No Calc that has MC and Free Response, Part 2: Calc OK that has MC and Free Response

No Calc:
- know how to find zero's of a polynomial and roots
- know what how to find arcsin, arccos, arctan
- know how to graph absolute value
- know how to determine domain and range
- know how to find horizontal and vertical asymptotes
- know how to shift/transform a graph
- couple of interpreting the graph questions like those in the homework

Calc:
- know how to do compositions of functions f(g(x))
- know how to determine odd/even functions
- know how to sketch a graph and determine asymptotes/holes/domain/range/roots, etc…
- know how to determine end behavior
- know how to sketch the inverse
- be able to do the difference quotient like homework & warmups

**Sample problems.**

1. Sketch a graph of : f(x) = $\frac{x+1}{2x^2-3x-5}$

Find all vertical and horizontal asymptotes and any holes.

2. Use the table to find: a) (f o g)(4) b) (g o f)(2)

| x | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| f(x) | 5 | 3 | -2 | -8 |
| g(x) | 7 | 12 | 20 | 2 |

3. Suppose you had $y = x^3$ and reflected this about the y-axis and then shifted it up 5. What would the new equation be?

4. Are the functions odd, even or neither?

a) $y = e^x$ b) y = sin x c) y = log x

5. Find the zero's of the function and describe the end behavior. f(x) = -3x(x – 2)(x + 1)(x -5)
Is this function odd, even or neither?

6. If shown a graph, know how to sketch the inverse.

7. Find the difference quotient $\frac{f(a+h)-f(a)}{h}$ of $f(x) = x^2 + 2x - 5$

8. Find the arccos $\frac{\sqrt{2}}{2}$

9. Graph $f(x) = \begin{cases} x^2 - 1, x < 1 \\ 2x, x \geq 1 \end{cases}$

10. Use the graph given to evaluate each.

a) (f o g) (1)  b) (g o f)(3)