***Problem Set 1 Calculus*** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**I. SHOW ALL WORK! Short Answer Problems are 4 pts. each. True/False 3pts. each**

1. Does  have even or odd symmetry?

2. Find the y-intercept of 

3. True or False? If *f* and *g* are nonzero functions, the *f*(*g*(x)) = *g*(*f*(x). Justify.

4. Find the domain of .

5. True or False? 

6. Find the domain of the function .

7. True or False? . Justify.

8. Among all the lines perpendicular to 4x – y = 2, find the equation of the one which together with the

 positive x and y axes, form a triangle with an area equal to 6.

**II. Multiple Choice: Show all work in a Logical Progression. 5 pts. each**

9. What is the value of ?

A. -2 B. DNE C. 2 D.  E. 

10. Find the equation of the line that is perpendicular to 2x + 5y = 8 and passes through (-1, 0).

A.  B.  C.  D.  E. 

11. Calculate *g(2)* – *g(0)* if 

A. 3 B. -2 C. -1 D. 0 E. 1

12. Solve .

A. x > -4 B. x <  C. < x < -4 D. 1 > x > 4 E. x < 3

13. Find the horizontal and vertical asymptote(s) of .

A. x = -2, y = 2 B. x = 2 and x = -1, y = 2 C. x = 1, y = 2

D. x = -2 and x = 1, y = 2 E. x = -2 and x = 1, y = 1

14. The inverse of the function is

A.  B.  C. 

D.  E. 

15. Find all of the roots for the function: .

A. x =  B. x = , x =  C. x = , x =  D. x = , x =  E. x = , x = 

16. Solve algebraically.

A. x = 2 B. x = 0 C. x = 1 D. x = 0 and x =  E. x = 0 and x = 2

17. If and , find.

A.  B.  C.  D. 3 E. 

18. Using the sum or difference identity, find the exact value of .

A.  B.  C.  D.  E. .2588

19. Find  if in Quadrant II.

A. 1 B.  C.  D.  E. 

20. The general solution of  = -1 is the form:

A.  B.  C.  D.  E. 

21. An algebraic expression for  is: Assume x is in the first quadrant.

A.  B.  C.  D.  E. 

22. From a point 82 feet from the base of a tree, the angle of elevation to the tree is . Find the expression

 you would use to find the height of the tree.

A.  B.  C.  D.  E. 