REVIEW FOR PRECALCULUS MIDTERM NAME

***NO CALCULATORS***

***Show work on your own paper.***

1. Describe the transformations used to obtain the graph  from the graph of

 .

2. If the graph of  is transformed to , then 

3. If (*x* +3) is a factor of , what is the value of *k*?

4. Describe the end behavior of the graph of , using appropriate limit notation.

5. Look at the graphs of the 12 basic functions. Which function is bounded below but not above? Which graphs are bounded both above and below?

6. Write a polynomial function with real coefficients if the zeros of the function are , , and

 *x* = -2 (multiplicity 2).

7. Express the domain of  in interval notation.

8. Use what you know about zeros, end behavior, and multiplicity to sketch a graph of the function .

9. Let . Find any of the following, if they exist: horizontal asymptotes, verticals asymptotes, holes, slant asymptotes, *x*-intercepts, *y*-intercepts.

10. What are the equations of the asymptotes and the initial value for the function ?

11. Solve for *x*: 

12. Solve the inequality . A sign chart will help.

13. Solve for *x*: 

14. Solve for *x*: 

15. Solve for *x*: 

16. Solve for the exact value of *x*: 

17. A parabola is given by the equation . Complete the square to find its vertex, focus, directrix, focal width, and focal length.

18. Find the equation of the ellipse having minor axis length 16, and foci (-4, 2) and (-4, 8).

19. What are the slopes of the asymptotes of the hyperbola ?

20. Identify the conic section described by . Then find its vertices and foci.

21. Given  , find .

22. What is the inverse of ?