**Honors Pre-Calculus and Trigonometry   
1st Semester Final***[Multiplier of 4]*

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_  
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**Test Sections Score**

**Chapter 1 Functions and Their Graphs \_\_\_\_\_\_  
  
Chapter 2 Polynomials and Rational Functions \_\_\_\_\_\_  
  
Chapter 3 Exponential and Logarithmic Functions \_\_\_\_\_\_  
  
Chapter 4 (Section 1) Radians and Degrees Measure \_\_\_\_\_\_  
  
Chapter 4 Trigonometry \_\_\_\_\_\_  
  
  
  
1st Semester Final \_\_\_\_\_\_**

**Chapter 1 Functions and Their Graphs**

Find the Domain and Range of the Following. [L2]

1.) 1. D=\_\_\_\_\_\_\_\_ R=\_\_\_\_\_\_\_\_  
  
2.) 2. D=\_\_\_\_\_\_\_\_ R=\_\_\_\_\_\_\_\_  
  
Given f(x) and g(x) find the following. [L2]

3.) 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
4.) 4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
5.) 5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
6.) 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
Find (f(f(3). [L3]

7.)  7.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Find f(g(x)). [L3]

8.) 8.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
  
Find inverse. [L3]

9.) 9.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Write an Equation and Solve. [L4]

10. As a salesperson, you currently receive a monthly salary of $2000, plus a 7% commission on your sales. You are offered a new job that pays $2300 a month, but only 5% commission on sales. Write and solve an equation that proves how much you will have to sell each month to justify taking the new job.

10.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 2 Polynomials and Rational Functions**

Find the Vertex and x-intercepts.[L2]   
  
1.) 1. V=\_\_\_\_\_\_\_\_ X-Int=\_\_\_\_\_\_\_\_  
  
Solve the following. [L2]

2.) 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.) 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4.) 4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Simplify. [L2]

5.) 5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Identify the Horizontal Asymptote. [L2]

6.) 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Given that x-5 is a factor, solve for all zeros. [L3]

7.) 7.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe the End Behavior. [L3]

8.) 8.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Find the Limit. [L3]

9.) Find  9.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Using a limit, find the slope of the tangent line to the given equation at the given point. [L4]

10.) at the point x = 1

10.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 3 Exponential and Logarithmic Functions**

Rewrite from log form to exponential or exponential to log form. [L2]

1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
  
  
  
2.) 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Evaluate. [L2]

3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solve. [L3]

5.) 5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6.) 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solve the following. Be specific, no between x and y years. [L4]

7.) If you invest $2500 into an account that has 3.2%   
 interest compounded continuously, how long will  
 it take to double your money?   
 Note: Compounded Continuously Formula:

7.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 4 (Section 1) Radians and Degrees Measure**Convert the following. [L2]

1. Change 142° to radian measure in terms of . 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Change radians to degree measure. 2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer the following. [L2]  
  
3. Give one positive angle and   
one negative angle that is coterminal to 50°. 3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Give one positive angle and   
one negative angle that is coterminal to . 4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. The measure of a central angle in a circle of radius 16 cm   
is 50°. Find the measure of its intercepted arc in terms of π. 5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Answer the following. [L3]

6. A circular garden has a radius of 15 feet. It is divided into parts to plant   
various vegetables. The portion in which tomatoes are planted, has a central   
angle of . What is the area of the plot on which tomatoes are planted? 6.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. If an angle of measure is drawn in standard position,   
in which quadrant does the terminal side lie? 7.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Find the Appropriate Area. [L4]  
  
8.) The windshield wiper on a car rotates 135°. If the radius of the   
inner circle is 8 inches and the length of the wiper blade is 22 inches,   
to the nearest tenth, how many square inches of the windshield is   
being cleared by the wiper? (See the diagram.)   
 8.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Chapter 4 Trigonometry**

Identify the following Trig Functions. [L2]

s

Evaluate and Indicate the Number of Rotations. [L2]

4

# of rotations # of rotations

Evaluate given the following. [L3]

5.) Given that and Find the following.

6.) A safety regulation states that the max angle of elevation for a ladder is. You currently have a ladder that   
 has a max length of 80 feet. You want to build a tree house in your back yard, and stay within safety   
 regulations, but also build your tree house as high off the ground as you can. What is the highest point in   
 which you can safely build your tree house? *Justify your answer*.

Evaluate the following. [L4]

7.) You are standing *directly* between two buildings. You know that one building is 650 feet tall and the angle from where you are standing to the top is The angle of elevation to the top of the other building is , how tall is the second building, ***and*** how far apart are the two buildings.