**PRE CALC SEMESTER EXAM REVIEW WS**

**Show all work.**

1. Graph: 
2. Find the VA, HA, holes, slant asymptote, x and y-int: 
3. Find all the zeros: 16x3 + 20x2 + 8x+ 1 = 0
4. Find the domain: 
5. Write the polynomial with roots -4, 2 and i if the constant term is 4.
6. Evaluate: for f(-3), f(-1), and f(5).
7. Find the average rate of change of f(x) = 4x2 – x3 + 5 between x = 0 and x = 10.
8. Find the domain and minimum or maximum value: f(x) = -x2 – 16x + 7
9. The height of a rocket after t seconds can be measured by H(t) = 720t – 16t2, where H is in feet. How long does it take the rocket to achieve the maximum height and what is the max height?
10. Determine the end behavior of f(x) = -x4 + 8x3 – 16x2.
11. Use the remainder theorem to evaluate P(-1) for

P(x) = 22x2004 – 5x569 + x104 – 27x + 22x2003 – 5x568 + x103 – 27. What does this mean???

1. Solve: 
2. Solve: 
3. Find the amount of time required to double an investment at 6.95% if interest is comp continuously.
4. Insert two geometric means between -6 and -162.
5. Find the ninth term of a sequence with first term 2 and common difference 5.
6. Find the sum of the first 25 terms of the sequence -2, 2, 6, 10, 14, …
7. Find the ninth term if a1 = 2 and r = 2.
8. Find the sum: 
9. Graph and find the domain, range and asymptotes of y = -2x.
10. Find the focus, directrix, focal diameter and sketch: 5x2 – 10y = 0
11. Find the center, vertices, foci, asymptotes of: 25x2 – 9y2 – 100x – 36y = 161
12. Write an equation of an ellipse with endpoints of the major axis at (3, 6) and (3, -6) and endpoints of the minor axis at (0,0) and (6, 0).
13. Factor using the binomial theorem: x4 – 12x3y + 54x2y2 – 108xy3 + 81y4.
14. If you invest $2500 at 6.5% compounded quarterly, how much will you have after 7 years?
15. Find the half life of strontium-90 if a 12 mg sample decayed to 8 mg in 14.62 years.
16. Find  when 
17. Simplify: 
18. What numbers must be excluded from the domain? 
19. Solve: 
20. Find the inverse: 
21. Find the zeros and state and describe the multiplicity: 
22. Evaluate: 

34. Expand: 

1. Condense: 
2. Evaluate to four decimal places: 
3. Solve: 
4. Graph and find the foci: 
5. Find the foci and vertices: 
6. Write the equation of the hyperbola that has: foci (0, -4) & (0, 4) and vertices (0, -3) & (0, 3)
7. Write the equation of the parabola that has vertex (2, -5) and focus (2, -7).
8. Find the vertical and horizontal asymptotes and holes, if any. 
9. Find  if 