Honor Code Certification:

Your signature_____

Show your steps. and work on another piece of paper. Unless otherwise indicated: Each question is scored: 2 points for the correct answer; 3 points for the correct work. Partial credit may be awarded.

1)

Write a rational function that approximates attached. Make sure to show your explanation:

2)

Write a polynomial function for the graph on the following page. Don't forget to find "a"

3)

Write a formula for the graph of the transformed logarithim function on the following page.

4)

Write a formula for the graph of the transformed exponential function on the following page.

Find the average rate of change for the function over the given interval.

5) $y = \sqrt{2x}$ between $x = 2$ and $x = 8$

Solve the exponential equation.

6) $24^x = 10^{-5x}$

Solve the logarithmic equation.

7) $\log_4(x + 4) + \log_4(x - 4) = 1$

8) Find the domain of radical function below. Write using interval notation.

$$f(x) = \sqrt{-4x^3 - 18x^2 + 12x + 10}$$

Solve.

9) During the Califonia Gold Rush, the population of San Francisco, CA grew from 200 people in 1846 to 36,000 people in 1852. Assuming the population grew exponentially, find an exponential equation that models this growth. If the model held valid today, how many peole would be living in San Francisco?

Solve the cubic equation for exact values. Take a look at the white board for the factoring rule.

10) $125x^3 - 81 = 0$

x=-3

5

y = 2

(5, undefined)

(-1, 0)   (2, 0)

x = 3

5

(2, 0)

-5   0   5

(-1, 0)

(0, -0.8)

-5

(0, 2)

(-2, -14)

(0, -3)

(-2, -6)