PS 2 Due Friday 9/28
Honor Code Certification:

Your signature_____

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

Solve.

1) $x^2 + 2y^2 = 11$
$x - y = -3$

Solve the equation for the interval $[0, 2\pi)$.

2) $\sin^2 x - \cos^2 x = 0$

Prove the identity.

3) $\tan^2 x + \cos 2x = 1 - \cos 2x \tan^2 x$

Solve the exponential equation. Round to three decimal places when necessary.

4) $e^x + e^{-x} = 5$

Solve the logarithmic equation.

5) $\ln(5x - 4) = \ln 4 - \ln (x - 1)$

Solve.

6) $3x^3 - 11x^2 \leq 20x$

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

7) $y = x^3 + x^2 - 8x - 7$ between $x = 0$ and $x = 2$

Use the formula for instantaneous rate of change, approximating the limit by using smaller and smaller values of h, to find the instantaneous rate of change for the function at the given value. This is a tabular solution.

8) Approximate the instantaneous rate of change of $f(x) = x^{1/x}$ at $x = 3$. Explain what you did.

Find the limit, if it exists.

9) $\lim_{h \to 0} \dfrac{2}{\sqrt{3h+4} + 2}$

10) $\lim_{x \to 1} \dfrac{x^4 - 1}{x - 1}$