12pm class

Quiz 1

Fall 2012 **Your name:** _____

Math 0220 **Your TA's name:** _____

No calculators. Show all your work (no work = no credit). Write neatly. Simplify your answers.

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1. [5 points] Calculate the volume V of the cone with the radius $r = 3$ in. and the hight $h = 5$ in.

2. Solve inequalities

(a) [5 points] $3x - x^2 < 0$

(b) [5 points] $\sin\theta > \dfrac{1}{2}$ on the interval $0 \leq \theta \leq 2\pi$.

3. [5 points] One of the roots of the polynomial $p(x) = x^3 + 3x^2 - 5x + 1$ is $x_1 = 1$. Find the other roots or show that the polynomial does not have more roots.

bonus problem [5 points extra] Calculate $\sin\left(\frac{5\pi}{12}\right)$. Write the answer in form of radicals. Hint: $\frac{5\pi}{12} = \frac{\pi}{6} + \frac{\pi}{4}$.