Practice problems 5

1. Find the domain of the function $\log_{10}(\log_{10}(\log_{10}(x)))$.

2. Let $f(x) = x^2 + 1$ and $g(x) = \frac{1}{x^2 + 1}$. Verify that $g(x)$ is not the inverse function of $f(x)$.

3. Write an expression for $r_1$ and $r_2$ in the factorization $ax^2 + bx + c = a(x - r_1)(x - r_2)$.

4. Find all solutions to $\cos(10\pi x) = 1/2$ with $1 \leq x \leq 2$.

5. Sketch the parabola $-8x + 32 = (y - 3)^2$. Mark the directrix and the focus.

6. Let $\theta = \arctan(5/12)$. Determine $\cos(3\theta)$ and $\sin(\pi + \theta)$. 