

Math 111 Quiz #7
May 18, 20010

Name: _____

Show all work and answers on a separate sheet with a box around your final answer. No calculators.

1. (2 pts.) The domain of an unknown function $g(x)$ is $-1 \leq x \leq 7$. The range is $-2 \leq y \leq 3$. What is the domain and range of $-4g(\frac{1}{3}x)$?

2. (3 pts.) Find an equation of a parabola with vertex $(-2, 1)$ and y -intercept $(0, 6)$.

3. The height of a tiny toy rocket is given by $h(t) = -16t^2 + 32t$ in feet at t seconds.
 - (a) (2 pts.) What is the maximum height of the rocket? (Include units.)

 - (b) (1 pt.) When does the rocket land? (Include units.)

4. (2 pts.) Decompose the function $f(x) = \ln(5 - x^2)$ into two functions $u(x)$ and $v(x)$ such that $u(v(x)) = f(x)$.
(with $u(x) \neq x$ and $v(x) \neq x$)

Note: Vertex Form of a Quadratic Function: $y = a(x - h)^2 + k$

Vertex Formula: $x = -\frac{b}{2a}$