7.3,7.4 Worksheet 2011 May the force be with _____

Date: _____ Per: _____

1) Given $f(x) = 2x + 1$ and $g(x) = x^2 + 2$, find the following:

a) $f(4x)$ b) $g(2x^2)$ c) $f(x^2 + 3x)$ d) $g(x - 5)$

e) $f(g(x))$ f) $g(f(x))$ g) $f(f(x))$ h) $g(g(x))$

2) Given $f(x) = x^2 + 3x$ and $g(x) = 2x^2 + 6x$, find the following:

a) $f(x) + g(x)$ b) $f(x) - g(x)$ c) $f(x) \cdot g(x)$ d) $f(x) \div g(x)$

e) $f(g(x))$ f) $g(f(x))$ g) $f(f(x))$ h) $g(g(x))$

3) In order for $f(x)$ and $g(x)$ to be inverses what must be true about their composition?

4) What is the relationship between the graphs of $f(x)$ and $g(x)$?

For problems 5-6, use composition to determine if $f(x)$ and $g(x)$ are inverses.

5) $f(x) = 4x^2 - 3,\ x \geq 0 \quad g(x) = \dfrac{\sqrt{x+3}}{2}$

6) $f(x) = \dfrac{x^3 + 3}{4} \quad g(x) = 4\sqrt[3]{x-3}$

For problems 7-9, find $f^{-1}(x)$.

7) $f(x) = 9x - 6$

8) $f(x) = \dfrac{\sqrt[5]{x+3}}{2}$

9) $f(x) = (4x-8)^2,\ x \leq 2$

10) Given the following relation, find the inverse relation:

x	0	6	10	20	25
$f(x)$	1200	900	1100	700	1000

x					
$f^{-1}(x)$					