Problems PreCal 1508 PLTL Workshop, September 9, 2011
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1. Determine if the pairs of functions are inverses of one another
   (a) $f(x) = \frac{x^3}{2}, \quad g(x) = \sqrt[3]{2x}$
   (b) $f(x) = \frac{x-9}{4}, \quad h(y) = 4y + 9$
2. The function given by $f(x) = k(2 - x - x^3)$ has an inverse function, and $f^{-1}(3) = -2$. Find k. (*Hint : Don't try to find the inverse function*)
3. Determine if the following functions have an inverse, and if they do find the inverse.
   (a) $h(x) = \frac{1}{x^4}$
   (b) $g(x) = (x+3)^2, \quad x \geq -3$
   (c) $f(x) = \sqrt{2x+3}$
4. Restrict the domain of $f(x) = \frac{1}{2}x^2 - 1$ so that f has an inverse function, then find the inverse function f^{-1}.
5. Does f have an inverse function?

x	$f(x)$
1	4
2	8
3	2
4	4

6. If $f(x) = x + 1$ and $g(x) = 6x$, is $(f \circ g)(x) = (g \circ f)(x)$?
7. If $(f \circ g)(x) = \frac{(x+1)^2}{x+9}$ and $f(x) = \frac{x^2}{x+8}$ what is $g(x)$?