Kerry Ojakian's MTH 30 Class
Class Assignment #7

1. Consider the function $f(x) = 5x - 1$. And consider its inverse function f^{-1}.

   (a) Before finding the full inverse function, just calculate $f^{-1}(-1)$ and $f^{-1}(0)$.

   (b) Check algebraically if $g(x) = (1/5)x + 1$ is the inverse function.

   (c) If g is NOT the inverse, then find the inverse algebraically.

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2. Consider the function f given by the following table.

x	2	4	6	10	15	17
$f(x)$	3	4	13	2	6	14

   Use the table to evaluate each.

   (a) $f(2)$ (b) $f(10)$

   (a) $f^{-1}(14)$ (b) $f^{-1}(4)$

   (a) $f^{-1}(2)$

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3. For each pair of functions, check if they are inverses by verifying $f(g(x)) = x$ and $g(f(x)) = x$.

   (a) $f(x) = 2x, \ g(x) = x + 2$ (b) $f(x) = 7 - x, \ g(x) = 7 - x$

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4. Suppose $f(x) = 4x - 3$. Find the inverse $f^{-1}(x)$ using algebra.

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5. Show that $f(x) = 4x - 7$ and $g(x) = \dfrac{x+7}{4}$ are inverses.

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6. Show that $f(x) = \dfrac{x-2}{2x+1}$ and $g(x) = \dfrac{-x-2}{2x-1} + 5$ are inverses.

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7. Find the inverse of the function $f(x) = 2x - 1$.

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8. Find the inverse of the function $h(x) = x^2 - 4$, with domain $(-\infty, 0]$ (so $x \leq 0$).

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9. Find the inverse of the function $f(x) = \dfrac{x-1}{x+1}$.