Name: _____

MATH 101
Fall 2022
HW 10: Due 10/24

"VIP is always better, Vivian."
–Anna Delvey (Sorokin), Inventing Anna

Problem 1. (10pt) A function $f(x)$ has a table of values given below. Using this table, explain why $f^{-1}(x)$ cannot exist.

x	1	2	3	4	5
$f(x)$	6	3	9	6	1

Problem 2. (10pt) Let $f(x) = 4x + 3$ and $g(x) = \frac{1}{4}(x - 3)$. Show that $g(x)$ is the inverse of $f(x)$ by showing that $(f \circ g)(x) = f(g(x)) = x$ and $(g \circ f)(x) = x$.

Problem 3. (10pt) Let $y = \frac{1}{3}\,x + 5$.

(a) By interchanging the roles of y and x, find the inverse to the function $f(x) = \frac{1}{3}\,x + 5$.

(b) Use the answer from (a) to find $f^{-1}(-2)$.