**1**. [9 points] Consider the table of known values for the functions $f(x)$ and $h(x)$, where $f(x)$ is invertible.

| $x$ | $-4$ | $-2$ | $-1$ | $0$ | $1$ | $2$ | $4$ |
|---|---|---|---|---|---|---|---|
| $f(x)$ | 2 | 3 | 0 | $-2$ | $-1$ | 4 | 5 |
| $h(x)$ | ? | 2 | 1 | 4 | 0 | ? | 7 |

**a**. [4 points] Find each of the following, or write N/A if a value does not exist or there is not enough information to find it.

(i) $f^{-1}(0)$ **Answer:** $f^{-1}(0) =$ $-1$

(ii) $f(h(0))$ **Answer:** $f(h(0)) =$ **5**

(iii) $h(g(1))$, where $g(x) = \log(x)$
**Answer:** $h(g(1)) =$ **4**

(iv) $k(1)$, where $k(x) = -4f(2(x+1)) - 6$
**Answer:** $k(1) =$ $-26$

**b**. [2 points] If $f(h(2)) = 0$, then what is $h(2)$?
**Answer:** $h(2) =$ $-1$

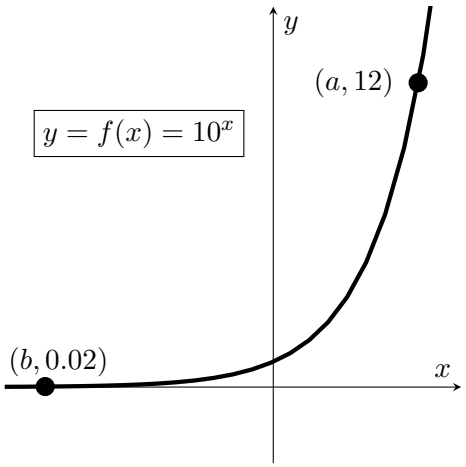
**c**. [3 points] Give a value for $h(-4)$ that would guarantee that $h(x)$ is *not* invertible and explain (in at most 1 sentence) why your value for $h(-4)$ forces the function to be non-invertible.

**Answer:** $h(-4) =$ **7 (or any of: 2, 1, 4, 0)**

**Explanation:**

*Solution:* If $h(-4) = 7 = h(4)$, then we have two inputs of $h$ with the same output.

**2**. [4 points] Use the graph of $y = 10^x$ below to decide whether each of the following statements is true (T), false (F), or there is not enough information to tell (NEI).




| | | | |
|---|---|---|---|
| (i) $a < 1$ | T | F | NEI |
| (ii) $b < -1$ | T | F | NEI |
| (iii) $\log(12) = a$ | T | F | NEI |
| (iv) $\log(b) = 0.02$ | T | F | NEI |