1. [9 points] Part of the graph of a function \( f(x) \) is shown below to the left; note that it has a horizontal asymptote of \( y = 7 \). Also shown is a table of some values for an invertible function \( g(x) \), and formula for a function \( h(x) \).

\[
\begin{array}{c|c|c|c|c|c|c}
 x & -5 & -2 & -1 & 0 & 1 & 2 \\
g(x) & 6 & -5 & 0 & 4 & 7 & 9 \\
\end{array}
\]

\[
h(x) = \begin{cases} 
  x^2 + 1, & 0 \leq x < \infty \\
  x + 1, & -\infty < x < 0 
\end{cases}
\]

\[ y = f(x) \]

\[ y = 7 \]

\[ x \]

a. [3 points] Find the domain and range of \( f(x) \). Give your answers using interval notation or using inequalities. You do not need to explain or justify your answer.

**Domain:**

\[ \]  

**Range:**

\[ \]

b. [6 points] Find or estimate the value of each of the following; write \( N/A \) if a value does not exist or there is not enough information to find it.

You do not need to show work.

(i) \( g(f(-1)) = \) 

(ii) \( f(g^{-1}(-5)) = \) 

(iii) \( h^{-1}(-5) = \) 

(iv) \( g(h(-2)) = \) 

(v) \( \lim_{x \to \infty} f(x) = \) 

(vi) If \( q(x) = g(x - 3) + 2 \), \( q(2) = \)