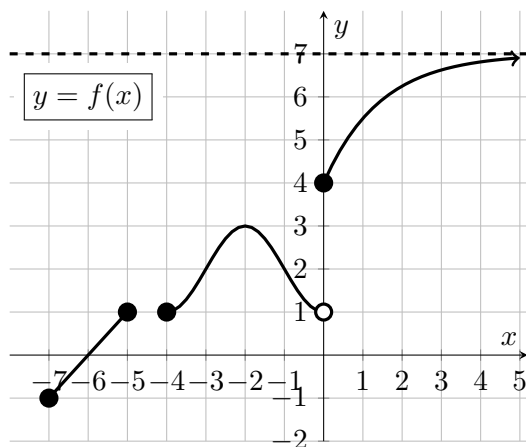


1. [9 points] Part of the graph of a function $f(x)$ is shown below to the left; note that it has a **horizontal asymptote of $y = 7$** . Also shown is a table of some values for an invertible function $g(x)$, and formula for a function $h(x)$.



x	-5	-2	-1	0	1	2
$g(x)$	6	-5	0	4	7	9

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

- 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) $\lim_{x \rightarrow \infty} f(x) =$ _____

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