1. [15 points]

a. [5 points] Suppose $f(x)$ is a function with domain $[-2, 5]$ and range $[7, 12]$. What are the domain and range of the transformation $g(x) = -f(2x + 1) + 2$?

The domain of $g(x)$ is $[-1.5, 2]$.

The range of $g(x)$ is $[-10, -5]$.

b. [4 points] Suppose $y = p(t)$ has vertical asymptote $t = 1$ and horizontal asymptote $y = 2$. Give the equations for a horizontal and vertical asymptote of the function $y = 2p(-t + 3) + 1$.

A horizontal asymptote of $2p(-t + 3) + 1$ is $y = 5$.

A vertical asymptote of $2p(-t + 3) + 1$ is $t = 2$.

c. [6 points] A graph of the function $h(t)$ is given below. On the empty set of axes, carefully sketch a well-labeled graph of $j(t) = -\frac{1}{2}h(t + 2) - 1$.