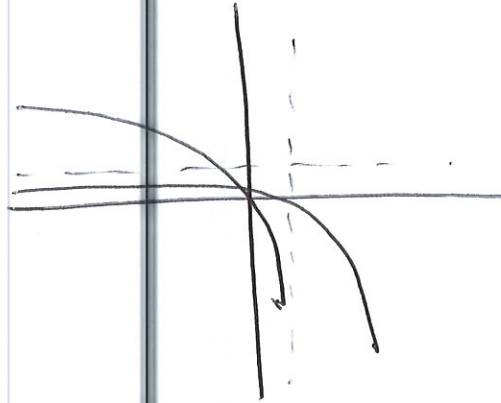


**Instructions:** Show all work. Use exact answers unless otherwise asked to round.

1. Sketch the graph of  $f(x) = -e^{x/2} + 2$ . Then find the inverse of  $f(x)$  and sketch that function on the same graph.

$$\begin{aligned}x &= -e^{y/2} + 2 \\x - 2 &= -e^{y/2} \\2 - x &= e^{y/2} \\\ln(2 - x) &= y/2 \\2 \ln(2 - x) &= y\end{aligned}$$



2. State the domain and range of the functions:

a.  $f(x) = \left(\frac{1}{2}\right)^{x-1} - 2$

b.  $g(x) = \log\left(\frac{x+1}{x-5}\right)$

D:  $(-\infty, \infty)$

D:  $(-\infty, -1) \cup (5, \infty)$

R:  $(-2, \infty)$

R:  $(-\infty, 0) \cup (0, \infty)$

$$\frac{x+1}{x-5} > 0$$

