1. (4 points) Determine the long run behavior of the exponential functions

(a) \( f(x) = -2 \cdot 5^{-x+4} + 2 \)

(b) \( g(x) = \pi \left( \frac{1}{e} \right)^{2x-1} - 7 \)
2. (2 points) Solve for $x$. Do not use logarithms.

$$81^x = \frac{1}{9}$$

3. (4 points) Sketch a graph of the function $\sigma(x) = x(x+3)(x+5) - 10(x+5)$, clearly labelling all intercepts.