1. (3 points) Solve $\log_4(3 - x) = 1 - \log_4(-x)$.

2. (3 points) Find the exact value of the following: $\log_4 \sqrt{32} - e^{-2\ln2}$
3. (4 points) Sketch a graph of the function \( q(x) = 1 - \log_3(2 - x) \), clearly labelling all intercepts, asymptotes, and long run behavior.