1. Find the domain of \( f(x) = \sqrt{\ln x} \).

2. Solve \( \log_x \left( \frac{1}{8} \right) = 3 \).

3. Find the inverse function of \( f(x) = \log(x - 4) + 3 \).
   State the domain and range of \( f(x) \).

4. Write \( \log_5 \left( \frac{\sqrt{x^3 + 1}}{x^2 - 1} \right) \) as a sum and difference of logarithms. Each logarithm should be as simple as possible.

5. Write \( 2\log_2(x + 1) - \log_2(x + 3) - \log_2(x - 1) \) as a single logarithm.