Find the derivative of each function

1. $f(x) = \ln(x) - x^2 + 3e^x + \ln(2)$

2. $f(x) = e^x \ln(x^2)$

3. $f(x) = \ln(x)(x^3 - e^3)$

4. $f(x) = -\ln(\sqrt{e^x + x})$

5. $f(x) = \ln(e^x)$