

Question 1. Differentiate the following expressions:

a) $(x + 1)e^{5x^2}$

b) $\frac{e^{-x}}{1 + x^2}$

c) $(x + 1) \ln(2x + 2)$

d) $\ln(\sqrt{x + 5})$

e) 2^{x+5}

f) $x^x + 1$

g) $5\sqrt{\ln(x)}$

Ex 2. Compute the limit $\lim_{x \rightarrow \infty} \frac{200}{5 + 15e^{-x}}$.