

## Homework 9

1. Find the derivative of the function

(a)  $y = 2xe^{4x}$

(b)  $y = \log_6(x^2 + 5)$

2. Find the integral of the function

(a)  $\int xe^{x^2} dx$

(b)  $\int 2x3^{-x^2} dx$

3. Evaluate the limit

(a)  $\lim_{x \rightarrow 1^+} x^{\frac{1}{x-1}}$

(b)  $\lim_{x \rightarrow \infty} \frac{\ln x}{x^2}$