

(1) [5 points] Determine $\lim_{x \rightarrow 0} \ln(\cos x)$.

(2) [5 points] Differentiate $\ln \left[\frac{(2t + 1)^3}{(3t - 1)^4} \right]$.

(3) [5 points] Use logarithmic differentiation to compute y' , where

$$y = e^{\sin x} x^x$$