EXPONENTIAL AND LOGARITHMIC DIFFERENTIATION

(1) Use logarithmic differentiation to compute the following derivatives:
$$y = \frac{x \sin x}{\sqrt{x+3}} \qquad\qquad y' =$$

$$y = \sqrt[4]{\frac{(4x+1)(x+4)^2}{(x^3+5)(x+7)}} \qquad\qquad y' =$$

$$y = (\ln x)^{\ln x} \qquad\qquad y' =$$

(2) Evaluate the following derivatives:
$$y = \tan^{-1}(\ln 3x) \qquad\qquad y' =$$

$$y = \sin^{-1}(e^{6t}) \qquad\qquad y' =$$

(3) Find the derivative of $e^{tan(2x)}$ using the chain rule.