Chapter 3 practice problems

(1) $y = \tan^{-1}(2x)$ find y'

(2) $y = x \ln(x^2 - 4x)$ find y'

(3) $y = 3^x \cos x$ find y'

(4) $y = e^{\tan x}$ find y'

(5) Use logarithmic Differentiation:

$$y = \frac{(x^5 - 2x + 1)\sqrt{3x^2 - 2}}{(x-3)^4 (\sin(3x))}$$ find $\frac{dy}{dx}$

(6) Use logarithmic Differentiation:

$$y = (\cos x)^{(x^2 - 3x)}$$ find $\frac{dy}{dx}$

(7) Given $y^4 - 3xy^2 + dy = 1$ Find ~~eqn~~ the equation of the tangent line through $(0, 3)$

(8) $f(x) = x^2 + 3x$ approximate $f(1.99)$ using a local linear approximation

(9) find $\lim_{x \to 0} \frac{e^{x^2} - 1}{\sin(3x)}$

(10) See "Related Rate Practice with Answers" # 2

(11) See "Related Rate Practice with Answers" # 5

(12) See "Related Rate Practice with Answers" # 7a