1. (10 pts) Find the derivative of each of the following functions. Simplify your answer as much as possible (2.5pts each).

(a) $y = \sin^4(2x^3)$

(b) $y = \ln(\sec x)$

(c) $f(x) = x^3 e^{-2x}$

(d) $g(x) = x^{5^x}$