1. (8 pts) Find the *first* and *second* derivatives of the function.

(a) $f(x) = x^2 - 2x + 2^{32}$

(b) $g(t) = \sqrt{t} - \dfrac{1}{\sqrt{t}}$

2. (12 pts) Differentiate the function.

(a) $y = x^2(1 - x)$

(b) $y = \dfrac{x^2 + 1}{x}$

(c) $h(\theta) = 2(\sin\theta)(\cos\theta)$