Quiz 7

Name: _____

Instructions: Answer the following questions. When computing derivatives, you do not need to use the definition.

1. (3pts) One of the following described functions cannot exist. Which is it, and why? (A 'correct' answer without justification will receive little or no credit)

   (a)
   - $f_1'(1) = 0$,
   - $f_1''(1) = 0$,
   - $f_1(x)$ has a local minimum at 1

   (b)
   - $f_2'(0) = 0$
   - $f_2''(0) = 0$
   - for all points except $x = 0$, $f_2'(x) > 0$

   (c)
   - $f_3'(7) = 0$
   - $f_3''(7) > 0$
   - $f_3'(x) > 0$ for $x < 7$.

2. (3 pts) Compute $\dfrac{d}{dx}\left[\left(x^3+x^2+\dfrac{1}{x}\right)^7\right]$.

3. (4 pts) Compute $\dfrac{d}{dx}\left[\dfrac{\cos(x)}{\sin(x)}\right]$. Simplify your expression if possible.