Here are some sample questions from old tests. Some topics that we covered are not represented by these questions, but are still fair game.

1. Compute the following derivatives:

   (a) $f(x) = 2 + x + \dfrac{3}{x} - \sqrt{x} - 5x^7 + x^{3/4}$

   $\Rightarrow f'(x) =$

   (b) $y = \dfrac{x^3 + x}{x} \Rightarrow \dfrac{dy}{dx} =$

   (c) $D_x \left[(x^9 + x^8 + x^5 + 3)(1 + 2x^2 + 9x^3 - 4x^4) \right] =$

   (d) $\dfrac{d}{dx} \left[(x^9 + 2x^{1/3} + x^5 + 3)^4 \right] =$

2. Compute the following derivatives:

   (a) If $f(x) = \dfrac{u(x)v(x)}{w(x)}$, then in terms of $u(x)$, $v(x)$, $w(x)$, $u'(x)$, $v'(x)$, and $w'(x)$,

   we have $f'(x) =$

   (b) $y = (3 + x^4)^8 x^3 \Rightarrow \dfrac{dy}{dx} =$

   (c) $D_x \left[\left((x^9 + x^8 + x^5 + 3)(1 + 2x^2 + x^3 - 4x^4) \right)^9 \right] =$