

Extra Practice Problems — 02/09/05

These questions are exercises in the power, product, and quotient rules, along with derivatives of exponentials.

Compute the following:

$$(1) \frac{d}{dx} \left[x^{100} + \sqrt[3]{x^5} + \frac{1}{\sqrt[11]{x^7}} \right]$$

$$(2) \frac{d}{dx} \left[\frac{2}{x^2} + 2^x + \frac{e^x}{x+1} \right]$$

$$(3) \frac{d}{dx} \left[\frac{x+1}{x-1} \right]$$

$$(4) \frac{d}{dx} \left[\frac{x^7 + x^4 - \sqrt{x}}{xe^x} \right]$$

$$(5) \frac{d}{dx} \left[\frac{\sqrt{x} + x}{e^x - \frac{1}{x}} \right]$$

$$(6) \frac{d}{dx} \left[\frac{a^x + x^2}{e^x} \right]$$

$$(7) \frac{d}{dx} \left[\frac{\sqrt{x}e^x - \frac{1}{x}}{x^{11} - \frac{x}{x+1}} \right]$$