

name: _____

Solution

1. Find the derivatives for the following functions (3 points each)

(a) $f(s) = \sqrt{s}/4$

(b) $s(t) = 4\sqrt{t} - \frac{1}{4}t^4 + t + 1$

(c) $g(w) = e^w - e^2 + 8$

$$a) f(s) = \frac{1}{4}\sqrt{s} = \frac{1}{4}s^{\frac{1}{2}}$$

$$f'(s) = \frac{1}{4}\left(\frac{1}{2}s^{-1/2}\right) = \frac{1}{8\sqrt{s}}$$

$$b) s(t) = 4t^{1/2} - \frac{1}{4}t^4 + t + 1$$

$$\begin{aligned} s'(t) &= 4\left(\frac{1}{2}t^{-1/2}\right) - \frac{1}{4}(4t^3) + 1 + 0 \\ &= \frac{2}{\sqrt{t}} - t^3 + 1. \end{aligned}$$

$$c) g(w) = e^w - e^2 + 8$$

$$g'(w) = e^w$$