

4.1 HW # 29, # 73, # 77 Questions

not working
on this now

(29) $R(x) = \frac{2}{3x} - \frac{1}{2x^{0.1}} = \frac{2}{3}x^{-1} - \frac{1}{2}x^{-0.1}$

$$R'(x) = -\frac{2}{3}x^{-2} - \frac{1}{2}(-0.1)x^{-0.1-1}$$

$$= -\frac{2}{3}x^{-2} + 0.05x^{-1.1} = -\frac{2}{3x^2} + \frac{0.05}{x^{1.1}}$$

~~(79)~~ (79) $f(x) = (x(x-x^2))^{1/3}$ { @ this point is a product & power rule }

Step 1 ~~$(x^2+x)^{1/3}$~~ $(x-x^2)^{1/3}$

Have to use chain rule

Step 2 $f'(x) = \frac{1}{3}(x-x^2)^{1/3-1}$ { Power rule }

Step 3 = multiply $f'(x)$ above by $(1-2x)$

$$= \frac{1}{3}(x-x^2)^{-2/3} (1-2x)$$
 { Chain Rule }

Step 4 $\frac{1-2x}{3(x-x^2)^{2/3}}$

Example: $f(x) = 2(x)^4$

Step 1 $f'(x) = 2(4)x^{4-1} = 8x^3$

(77) $f(x) = x^{1/3}$ Step 1 $f'(x) = \frac{1}{3}x^{1/3-1} = \frac{1}{3}x^{-2/3}$ or $\frac{1}{3x^{2/3}}$

Step 2 $f'(1) = \frac{1}{3(1)^{2/3}} = 1$ Step 3 $f'(0) = \frac{1}{3(0)^{2/3}} = \text{Undefined}$

