

3.4 The Chain Rule

Name:

Date:

P 7. Find the derivative of $h(w) = (w^4 - 2w)^5$.

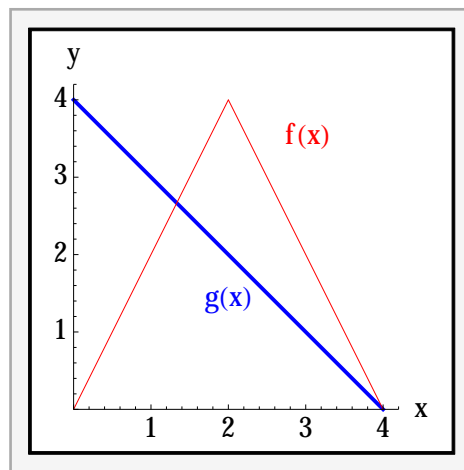
P 11. Find the derivative of $f(x) = e^{2x}(x^2 + 5^x)$

P 25. Find the derivative of $y = \sqrt{s^3 + 1}$.

P 31. Find the derivative of $f(y) = \sqrt{10^{5-y}}$.

P 47. Find the derivative of $y = \sqrt{e^{-3t^2} + 5}$.

P 59. Consider the graphs of $f(x)$ and $g(x)$.



Let $v(x) = f(f(x))$. Find:

(a) $v'(1)$

(b) $v'(2)$

(c) $v'(3)$

P 84. The world's population is about $f(t) = 6.91e^{0.011t}$ billion, where t is time in years since 2010. Find $f(0)$, $f'(0)$, $f(10)$, and $f'(10)$. Using units, interpret your answers in terms of population.

P 90. The balance in a bank account t years after money is deposited is given by $f(t) = 1000e^{0.08t}$ dollars.

- (a) How much money was deposited? What is the interest rate earned by the account?
- (b) Find $f(10)$ and $f'(10)$. Give units and interpret in terms of balance in the account.