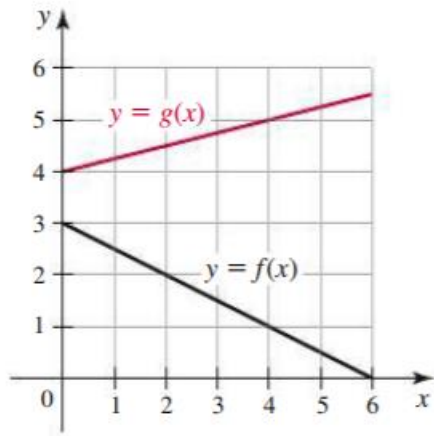


3.7 Group Activity Problems



11. Given that $h(x) = f(g(x))$, find $h'(3)$ if $g(3) = 4$, $g'(3) = 5$, $f(4) = 9$, and $f'(4) = 10$.
12. Given that $h(x) = f(g(x))$, use the graphs of f and g to find $h'(4)$.



Calculate the derivative of the following functions.

41. $y = \sqrt[4]{\frac{2x}{4x-3}}$

46. $y = (\cos x + 2 \sin x)^8$

48. $y = (1 - e^x)^4$

77. **Explain why or why not** Determine whether the following statements are true and give an explanation or counterexample.

- a. The function $x \sin x$ can be differentiated without using the Chain Rule.
 - b. The function $e^{\sqrt{x+1}}$ should be differentiated using the Chain Rule.
 - c. The derivative of a product is *not* the product of the derivatives, but the derivative of a composition is a product of derivatives.
 - d. $\frac{d}{dx}P(Q(x)) = P'(x)Q'(x)$
-

85. **Finding slope locations** Let $f(x) = xe^{2x}$.

- a. Find the values of x for which the slope of the curve $y = f(x)$ is 0.
- b. Explain the meaning of your answer to part (a) in terms of the graph of f .