2.(8 points) On the axes below, sketch a graph of a single **function**, g, with **all** of the following properties.
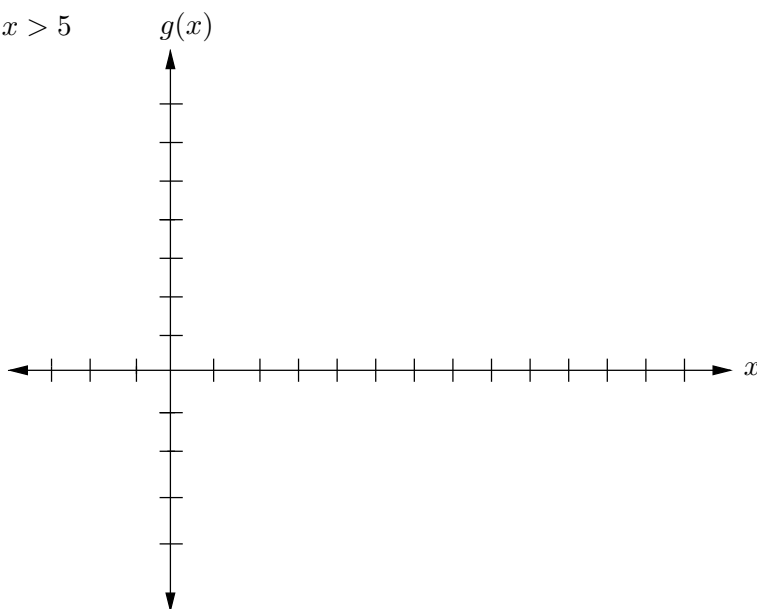
- $g(0) = 2$

- $g'(x) > 0$ for $x < 5$

- $g''(x) > 0$ for $x < 0$

- $g''(x) < 0$ for $0 < x < 5$

- $\lim\limits_{x \to 5^-} g(x) = 6$ and $\lim\limits_{x \to 5^+} g(x) = 3$

- $g(5) = 4$

- $g'(x) = 0$ for $x > 5$

3. (1+1+3 points) Upon graduating from the university and landing your first big job, you decide to reward yourself for all the hard work and purchase a brand new sports car. The price of the sports car is \$45,000. The value of the car depreciates at the rate of 37% per year. Comprehensive insurance costs 10% of the car's value each year. For parts (a) and (b) circle the best choice.

(a) The value of the sports car is a $\underline{\text{Linear} \setminus \text{Exponential} \setminus \text{Both} \setminus \text{Neither}}$ function of time.

(b) The cost of the comprehensive insurance is a $\underline{\text{Linear} \setminus \text{Exponential} \setminus \text{Both} \setminus \text{Neither}}$ function of V, the value of the car.

(c) Write a function that gives the cost of the comprehensive insurance policy on the car after the tth year.