Problem 1. (6pts total) Advertising executives drink coffee and then use the resulting energy boost to make money for their company. Let $R(c)$ represent the amount of annual revenue (in thousands of dollars) generated by an advertising executive who drinks c milliliters of coffee in the mornings.

(**a**) (2pts) Suppose that $R'(500) = 30$. If an executive's daily coffee consumption increases from 500 mL to 505 mL, then approximately what happens to their revenue? Write a complete sentence in response.

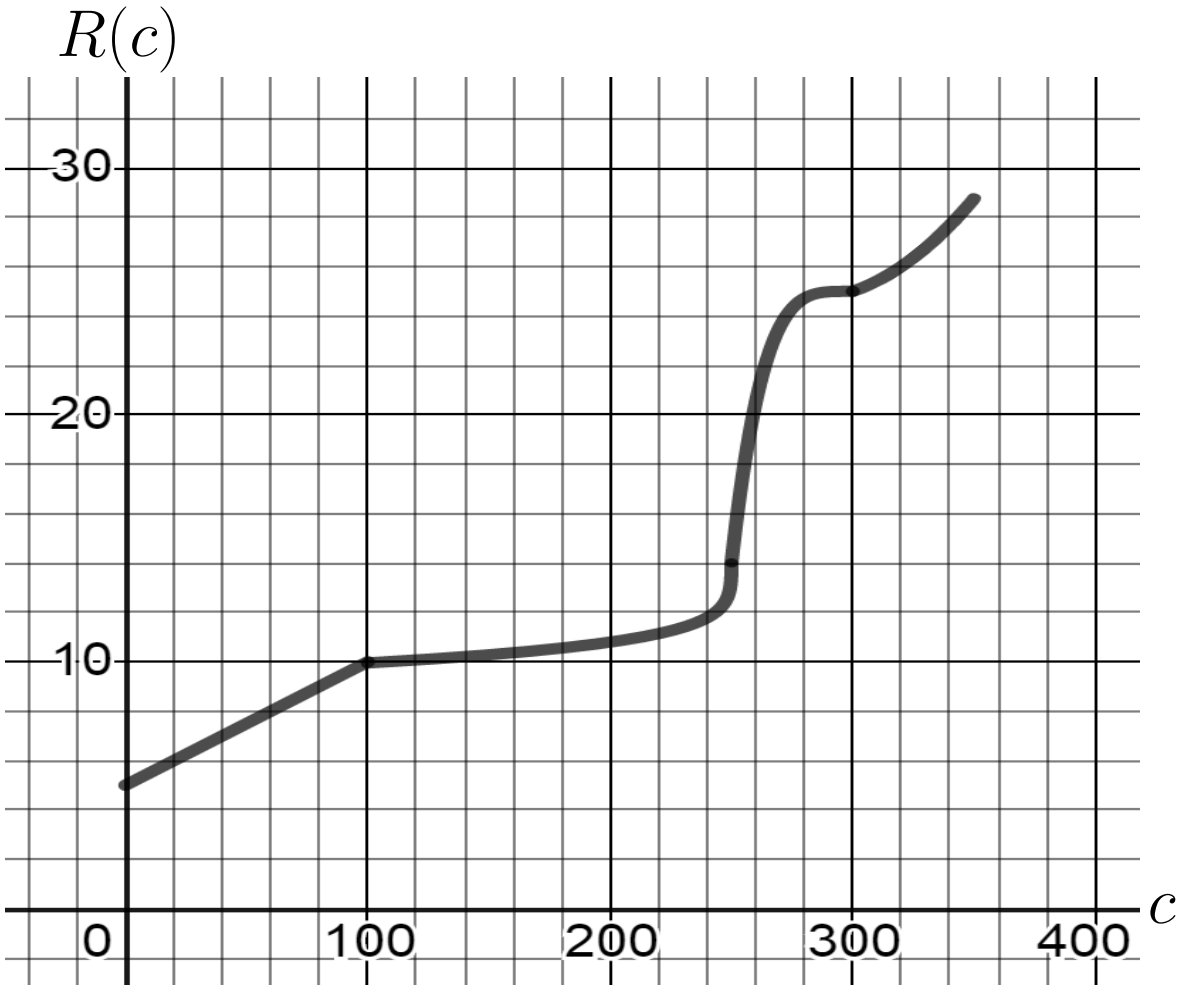
(**b**) (1pt) Write a single mathematical expression representing the following statement in terms of $R(c)$ and/or its inverse:

"An executive who produces $31,000$ dollars of annual revenue drinks 50 mL more coffee in the mornings than an executive who produces $30,000$ dollars of annual revenue."

(**c**) (1pt) Write a single mathematical expression representing the following statement in terms of $R(c)$:

"An executive who changes their amount of daily consumption from 460 mL to 560 mL would increase their revenue at an average rate of 25 dollars per each milliliter added."

Below is a graph of $R(c)$, the amount of annual revenue (in thousands of dollars) generated by an advertising executive who drinks c milliliters of coffee in the mornings. The graph only shows information from $c = 0$ to $c = 350$.



Parts (d) and (e) require information from the graph.

(**d**) (1pt) Estimate the average rate of change of $R(c)$ between $c = 200$ and $c = 300$. Include units and one sentence explaining how you found your estimate.

(**e**) (1pt) Estimate $R'(200)$. Include units and one sentence explaining how you found your estimate.