3. [10 points] Consider the function $f(x)$ graphed below.

![Graph of f(x)](image)

a. [3 points] Let $F(x) = \int_0^x f(t) \, dt$. Find the $x$-coordinates of all local extrema of $F(x)$ and classify them as local maxima or local minima. Write “NONE” if there are none.

Answer: Local maxima at $x =$

Answer: Local minima at $x =$

b. [3 points] Let $G(x) = \int_{3x}^{x^2} f(t) \, dt$. Compute $G'(-1)$.

Answer: $G'(-1) =$

c. [2 points] Which approximation method is guaranteed to underestimate $\int_{-4}^{0} f(x) \, dx$?

MID TRAP LEFT RIGHT NONE OF THESE

d. [2 points] Which approximation method is guaranteed to overestimate $\int_{-1}^{5} f(x) \, dx$?

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