5. (12 points) For parts (a) - (c), on the graphs below, show a graphical interpretation for each of the given expressions, and then explain how the quantities given by the expression relate to your drawings on the graphs.

(a) \( \int_{a}^{c} f(x) \, dx \)

\( \int_{a}^{c} f(x) \, dx \) is the area between \( f(x) \) and the \( x \)-axis from \( x = a \) to \( x = c \).

(b) \( f'(a) \)

\( f'(a) \) is the slope of the tangent line to \( f(x) \) at \( x = a \).

(c) \( \frac{f(c) - f(a)}{c - a} \)

This is the slope of the line connecting the points \((a, f(a))\) and \((c, f(c))\).