6. (7 points) The derivative of a continuous function g is given by

$$g'(x) = \frac{e^{-2x}(x+2)(x-3)^2}{(x-5)^{1/3}}.$$

Determine all critical points of g, and classify each as a local maximum, a local minimum, or neither. Carefully explain your reasoning for each classification.

7. (8 points) Use the following figure, which shows a graph of $f(x)$, to find each of the indicated integrals, given that the first area (with the darker shading) is 12 units and the second area is (with the lighter shading) is 3 units.
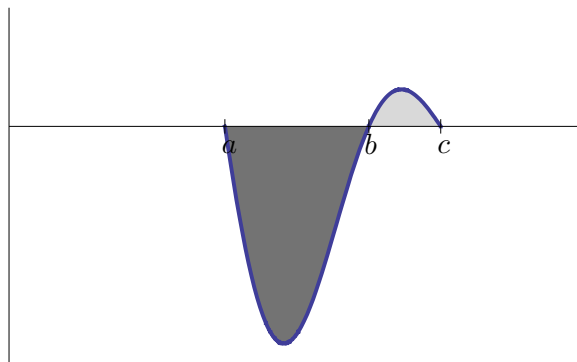
(a) $\displaystyle\int_a^b f(x)\, dx$ _____

(b) $\displaystyle\int_a^c |f(x)|\, dx$ _____

(c) $\displaystyle\int_c^a f(x)\, dx$ _____

(d) $\displaystyle\int_a^a 2(f(x)+3)\, dx$ _____