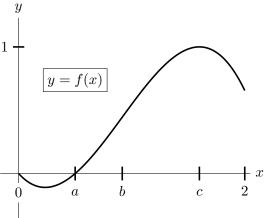
## **9**. [10 points]

The graph of a function y = f(x) with domain [0, 2] is given to the right, along with three points a < b < cin the interval (0, 2).

## Additionally:

- Note that f(0) = f(a) = 0 and that f(c) = 1.
- Suppose F(x) is an antiderivative of f(x).



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In each part below, two quantities are separated by a box. In each part, state which of the two quantities is larger, or if they are equal, by clearly writing  $\langle , =, \text{ or } \rangle$  in the box if this is possible; otherwise, if there is not enough information to relate the two quantities, write NEI in the box.

a. 
$$\int_0^c f(x)dx \leq \int_a^c f(x)dx$$
 f.  $\int_0^2 f'(x)dx \equiv f(2)$ 

b. 
$$\int_0^2 f(x)dx \ge \int_2^0 f(x)dx$$

c. 
$$\int_{a}^{2} f(x)dx - \int_{0}^{a} f(x)dx = \int_{0}^{2} |f(x)|dx$$

- d.  $f'(b) \ge \frac{1}{2} \int_0^2 f'(x) dx$
- e.  $\frac{1}{2} \int_{0}^{2} f(x) dx < 1$

g. F(b) **NEI** 0

- h. F(b) < F(c)
- i.  $\int_{a}^{c} f''(x) dx \leq 0$

j. 
$$\int_a^2 f(x)dx \ge \int_a^2 f(x)^2 dx$$