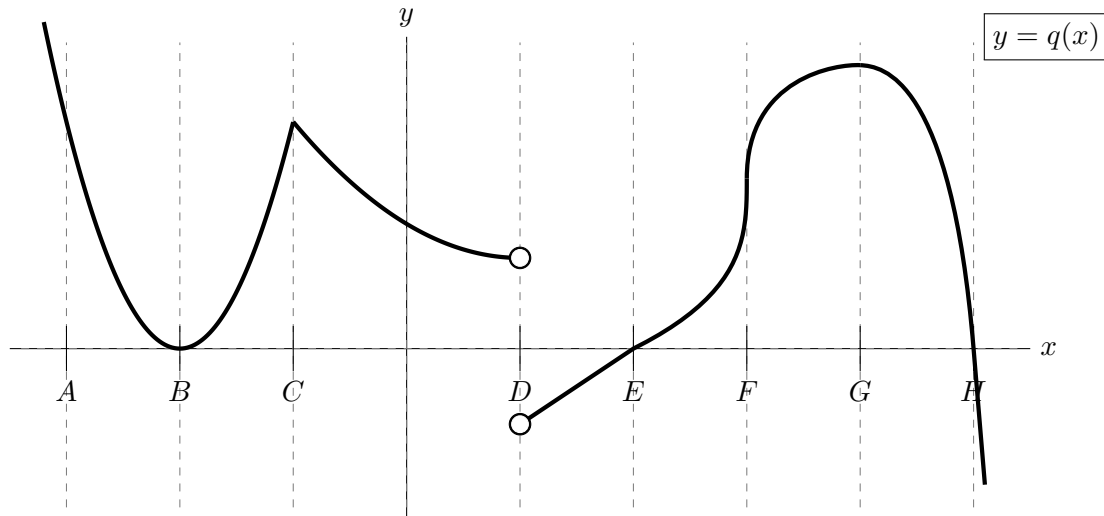**1.** [12 points] A portion of the graph of a function $q(x)$ is shown below. Note that

- the graph of $y = q(x)$ has a sharp corner at $x = C$,
- the $x-$intercepts of the graph of $y = q(x)$ are at $x = B$, $x = E$, and $x = H$, and
- the tangent line to the graph of $y = q(x)$ at $x = F$ is vertical.

Let $Q(x)$ be an antiderivative of $q(x)$ that is defined and continuous on the interval $A \le x \le H$.

For each of the questions below, circle <u>ALL</u> of the available correct answers.

(Circle NONE if none of the available choices are correct.)

a. [2 points] At which of the following six values of x is $q(x)$ <u>not</u> differentiable?

A B $\boxed{C}$ $\boxed{F}$ G H NONE

b. [2 points] At which of the following eight values of x does $q(x)$ have a local maximum?

A B $\boxed{C}$ D E F $\boxed{G}$ H NONE

c. [2 points] At which of the following eight values of x does $Q(x)$ have a critical point?

A $\boxed{B}$ C $\boxed{D}$ $\boxed{E}$ F G $\boxed{H}$ NONE

d. [2 points] At which of the following eight values of x does $Q(x)$ have a local maximum?

A B C $\boxed{D}$ E F G $\boxed{H}$ NONE

e. [2 points] At which of the following eight values of x does $Q(x)$ have an inflection point?

A $\boxed{B}$ $\boxed{C}$ $\boxed{D}$ E F $\boxed{G}$ H NONE

f. [2 points] At which of the following seven values of x is $q'(x)$ (the derivative of q) a negative number?

$\boxed{A}$ B C E F G $\boxed{H}$ NONE