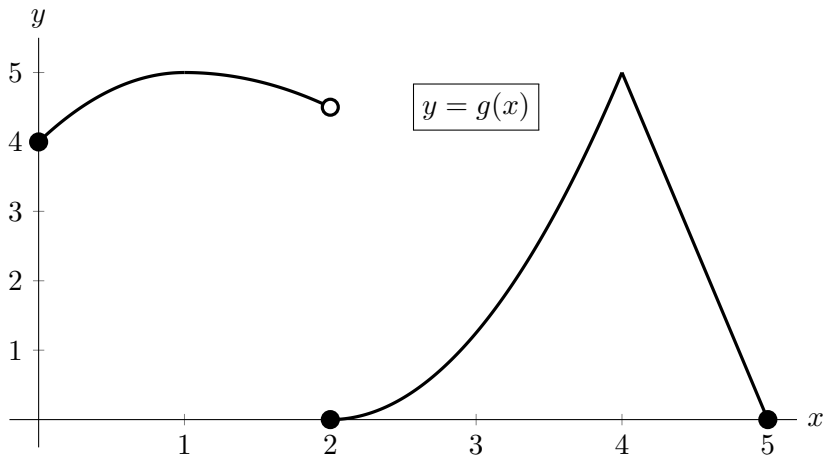
6. [14 points] The entire graph of a function $g(x)$ is shown below. Note that the graph of $g(x)$ has a horizontal tangent line at $x = 1$ and a sharp corner at $x = 4$.



For each of the questions below, circle <u>all</u> of the available correct answers.
(Circle NONE OF THESE if none of the available choices are correct.)

a. [2 points] At which of the following values of x does $g(x)$ appear to have a critical point?

$x = 1$ $\quad$ $x = 2$ $\quad$ $x = 3$ $\quad$ $x = 4$ $\quad$ NONE OF THESE

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

$x = 1$ $\quad$ $x = 2$ $\quad$ $x = 3$ $\quad$ $x = 4$ $\quad$ NONE OF THESE

c. [6 points] Let $L(x)$ be the local linearization of $g(x)$ near $x = 3$. Circle all of the statements that are true.

$L(3) > g(3)$	$L(2.5) > g(2.5)$	$L(0) > g(0)$
$L(3) = g(3)$	$L(2.5) = g(2.5)$	$L(0) = g(0)$
$L(3) < g(3)$	$L(2.5) < g(2.5)$	$L(0) < g(0)$
$L'(3) > g'(3)$	$L'(2.5) > g'(2.5)$	$L(5) > g(5)$
$L'(3) = g'(3)$	$L'(2.5) = g'(2.5)$	$L(5) = g(5)$
$L'(3) < g'(3)$	$L'(2.5) < g'(2.5)$	$L(5) < g(5)$

NONE OF THESE

d. [2 points] On which of the following intervals does $g(x)$ satisfy the hypotheses of the Mean Value Theorem?

$[0, 2]$ $\quad$ $[0, 4]$ $\quad$ $[3, 5]$ $\quad$ $[4, 5]$ $\quad$ NONE OF THESE

e. [2 points] On which of the following intervals does $g(x)$ satisfy the conclusion of the Mean Value Theorem?

$[0, 2]$ $\quad$ $[0, 4]$ $\quad$ $[3, 5]$ $\quad$ $[4, 5]$ $\quad$ NONE OF THESE