1. [13 points] Let g be a function such that $g''(x)$ is defined for all real numbers. A table of values of $g'(x)$, **the derivative of** $g(x)$, is given below.

x	-5	-1	0	3	4	7
$g'(x)$	3	0	-4	-3	0	2

Assume that between each pair of consecutive values of x given in the table, $g'(x)$ is either **always increasing** or **always decreasing**.

For parts **a.**–**f.**, circle **all** correct choices.

a. [1 point] At which of the following values does $g(x)$ have a critical point?

$x = -5$ $x = -1$ $x = 0$ $x = 3$ $x = 4$ $x = 7$ NONE OF THESE

b. [2 points] On which of the following intervals is $g(x)$ always decreasing?

$(-5, -1)$ $(-1, 0)$ $(0, 3)$ $(3, 4)$ $(4, 7)$ NONE OF THESE

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

$x = -1$ $x = 0$ $x = 3$ $x = 4$ NONE OF THESE

d. [2 points] On which of the following intervals is $g(x)$ always concave down?

$(-5, -1)$ $(-1, 0)$ $(0, 3)$ $(3, 4)$ $(4, 7)$ NONE OF THESE

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

$x = -1$ $x = 0$ $x = 3$ $x = 4$ NONE OF THESE

f. [2 points] Suppose that $g(7) = 0$ and $g''(x) < 0$ for all $x > 7$. Which of the following values of $g(10)$ are possible?

$g(10) = -5$ $g(10) = 2$ $g(10) = 6$ $g(10) = 11$ NONE OF THESE

g. [2 points] Use the table to give the best possible estimate of $g''(-3)$.

Answer: $g''(-3) \approx$ _____