3. [13 points] Let f be a function such that $f''(x)$ is defined for all real numbers. A table of some values of f' is given below.

x	2	3	4	6	9	11
$f'(x)$	4	1	0	2	0	-4

Assume that f' is continuous and either always decreasing or always increasing between consecutive values of x shown in the table.

a. [2 points] Using the table above, estimate $f''(11)$. *Show your work.*

Solution: Since f'' is the derivative of f', $f''(11) \approx \dfrac{f'(11) - f'(9)}{11 - 9} = \dfrac{-4 - 0}{11 - 9} = -2$.

Answer: $f''(11) \approx$ -2

For parts (b) through (e) below, find the indicated values.
Write NONE if there are no such values of x.
Write NOT ENOUGH INFO if there is not sufficient information to determine a value.
You do not need to explain your reasoning.

b. [3 points] Find the x-coordinates of all critical points of $f(x)$ on the interval $2 < x < 11$.

Answer: critical point(s) at $x =$ 4, 9

c. [3 points] Find the x-coordinates of all local minima of $f(x)$ on the interval $2 < x < 11$.

Answer: local min(s) at $x =$ NONE

d. [3 points] Find the x-coordinates of all inflection points of $f(x)$ on the interval $2 < x < 11$.

Answer: inflection point(s) at $x =$ 4, 6

e. [2 points] Find all values of x at which $f(x)$ attains its global maximum on the interval $2 \leq x \leq 11$.

Answer: global max(es) at $x =$ 9