5. [14 points] The function f is has a continuous second derivative on the interval $10 \leq x \leq 19$. Some values of its derivative function f' are given in the table below.

x	10	11	12	13	14	15	16	17	18	19
$f'(x)$	-34	-3	-1	-2	-3	31	62	70	66	37

a. [4 points] f has exactly one inflection point on the interval $15 \leq x \leq 19$. Given the information provided, give the smallest x interval on which this inflection point is guaranteed to lie, making it clear whether your endpoints are included.

b. [8 points] f has exactly four critical points, with x-values 11.2, 11.7, 12.6, and 14.2, respectively. Classify each point as a local minimum, a local maximum, or neither, given that f has either a local maximum or a local minimum at $x = 11.2$. For each point below, circle only one option.

At $x = 11.2$, f has **a local maximum** **a local minimum**

At $x = 11.7$, f has **a local maximum** **a local minimum** **neither**

At $x = 12.6$, f has **a local maximum** **a local minimum** **neither**

At $x = 14.2$, f has **a local maximum** **a local minimum** **neither**

c. [2 points] Is there at least one inflection point on the interval $11 < x < 12$? (Circle one.)

Yes **No** **Not possible to determine**