7. [11 points] Let g be a differentiable function defined for all real numbers satisfying all of the following properties:

- $g(5) = 4$.
- $g(x)$ has a local maximum at $x = -2$ and $g(-2) = 3$.
- $g(x)$ has a local minimum at $x = 1$ and $g(1) = -1$.
- g has exactly two critical points.
- $\lim_{x\to\infty} g(x) = +\infty$.
- $\lim_{x\to-\infty} g(x) = 0$.

a. [3 points] Circle all of the following intervals on which $g'(x)$ must be always positive.

$x < -2$ $\quad -2 < x < -1$ $\quad -1 < x < 1$ $\quad 1 < x < 3$ $\quad 3 < x < 5$ $\quad 5 < x$

b. [4 points] Find all the values of x at which $g(x)$ attains global extrema on $-2 \le x \le 5$. If not enough information is provided, write NOT ENOUGH INFO. If there are no such values of x, write NONE. Briefly indicate your reasoning.

Answer: global min(s) at $x =$ ____________________

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

c. [4 points] Find all the values of x at which $g(x)$ attains global extrema on its domain. If not enough information is provided, write NOT ENOUGH INFO. If there are no such values of x, write NONE. Briefly indicate your reasoning.

Answer: global min(s) at $x =$ ____________________

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