

10. [5 points] Suppose $g(x)$ is a differentiable function defined for all real numbers that satisfies the following properties:

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

Circle all of the statements below that must be true about the function g or circle NONE OF THESE if none of the statements must be true.

- i. The function $g(x)$ is increasing on the entire interval $x < 0$.
- ii. The function $g(x)$ is increasing on the entire interval $0 < x < 2$.
- iii. The function $g(x)$ is increasing on the entire interval $x > 2$.
- iv. On its domain $(-\infty, \infty)$, the function $g(x)$ attains its global maximum at $x = 0$.
- v. On its domain $(-\infty, \infty)$, the function $g(x)$ attains its global minimum at $x = 2$.
- vi. On its domain $(-\infty, \infty)$, the function $g(x)$ does not have a global maximum value.
- vii. On its domain $(-\infty, \infty)$, the function $g(x)$ does not have a global minimum value.
- viii. NONE OF THESE