

9. [7 points] Let $g(x)$ be a function that is twice-differentiable for all x . Additionally, $g(x)$ has the following properties:

- $g(x)$ has no inflection points on the interval $(0, 10)$
- $g'(x)$ does not change signs on the interval $(0, 10)$
- $g'(5) = 1$
- $g''(7) = -2$

Define the function $G(x)$ to be

$$G(x) = \int_1^x g(t) dt.$$

a. [2 points] Is $G(x)$ concave up, concave down, or neither at $x = 9$? No justification is required.

Circle one: CONCAVE UP CONCAVE DOWN NEITHER

b. [5 points] With the blanks provided, order from least-to-greatest

$G(9)$, LEFT(9), RIGHT(9), MID(9), TRAP(9)

where all the approximations above are of the definite integral $G(9)$. No justification is required.

_____ \leq _____ \leq _____ \leq _____ \leq _____