4. [11 points] Suppose the rate at which the amount of carbon dioxide (CO_2) in Walden Pond is changing t hours after 6am, in kilograms per hour, is given by the continuous function $h(t)$. Some values of $h(t)$ are given in the table below. Assume that between consecutive values of t given in the table, $h(t)$ is either **always increasing** or **always decreasing**.

t	0	3	6	12	15	18	21
$h(t)$	-2	-5	0	6	8	7	0

No justification is required in any part of this problem, but partial credit may be awarded for work.

a. [2 points] Write an expression involving an integral that represents the change in the amount of CO_2 in Walden pond between 9am and 12 noon.

Answer: _____ kg

b. [2 points] Write an expression involving an integral that represents the average rate of change of CO_2 in Walden pond between 6am and 6pm.

Answer: _____ kg/hr

c. [7 points] Suppose $H(t)$ is the amount of CO_2 in Walden Pond t hours after 6am, in kilograms, and assume $H(0) = 600$.

i. Put the following quantities in order from *least* to *greatest*.

$$H(0) \qquad H(3) \qquad H(18) \qquad H(21) \qquad H'(6) \qquad h(0)$$

Answer: _____ < _____ < _____ < _____ < _____ < _____

LEAST GREATEST

ii. Write an expression which does not include a capital "H" that is equal to $H(24)$. You may use the function $h(t)$, along with any integrals, derivatives, or numbers that you want.

Answer: $H(24) =$ _____