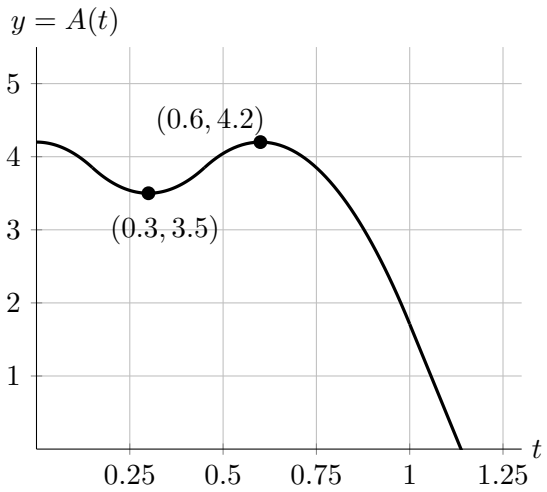
3. [13 points] Tom organizes another meeting of his Science Club, but this time only Anne and John can make it. The meeting is at 2 pm, so they both start walking from their houses to Tom's at 1 pm. At 1:18 pm, Anne realizes she forgot her wallet, so she goes back home to get it before heading over to Tom's house.

Anne's distance in kilometers, $A(t)$, and John's distance in kilometers, $J(t)$, to Tom's house t hours after 1 pm are given by the graph and the table below. Assume that both of them walk along a straight line.

t	0	0.2	0.4	0.5	0.8	0.9
$J(t)$	5.5	4.3	3.2	2.8	0.8	0



a. [1 point] How many kilometers from Tom's house is Anne's house?

Answer: _____

b. [2 points] Estimate $J'(0.4)$. Show all your computations. Include units.

Answer: _____

c. [3 points] Rank John's average velocity over the time intervals

(I) $0.2 \le t \le 0.4$ (II) $0.5 \le t \le 0.9$ (III) $0.8 \le t \le 0.9$

from least to greatest. Show your work and indicate your final answer by filling in the blanks with I, II, III.

_____ $\le$ _____ $\le$ _____

d. [2 points] What was the total distance travelled by Anne?

Answer: _____

e. [2 points] At which of the following times was Anne's speed the largest? Circle the correct answer(s).

$t = 0.05$ $t = 0.3$ $t = 0.4$ $t = 0.6$ $t = 1$

f. [3 points] On which of the following intervals is $A(t)$ invertible? Circle the correct answer(s).

$[0, 0.6]$ $[0.3, 0.6]$ $[0.1, 0.5]$ $[0.6, 1]$ $[0, 1]$

