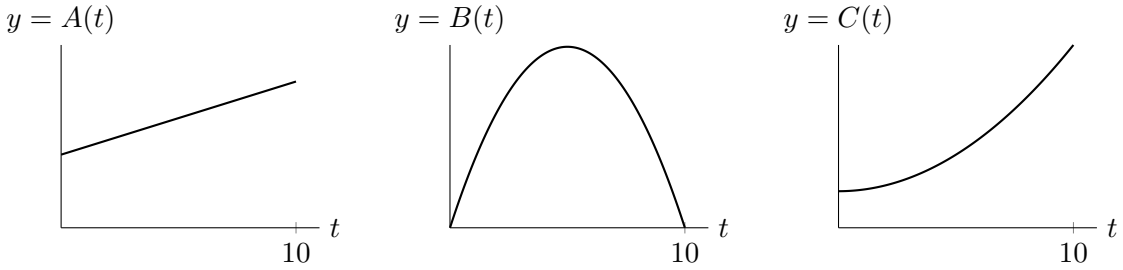
3. [9 points] A few friends are biking on a long, straight trail.

a. [5 points] The functions $A(t)$, $B(t)$, and $C(t)$ give the distances of Ani, Bo, and Cait respectively from the start of the trail at time t minutes after 1:00pm for $0 \le t \le 10$. The vertical scales of the graphs are the same.



Answer the following. You may use A, B, and C to denote Ani, Bo, and Cait respectively.

i. Which friend has the greatest velocity at 1:01pm?

B

ii. Which friend has the greatest average velocity on $[0, 10]$?

C

iii. Which friend is traveling at a constant speed?

A

iv. At 1:10pm, which friend is furthest from where they were at 1pm?

C

v. Which friend biked the greatest total distance on $[0, 10]$?

B

b. [4 points] Another friend, Diego, sets off on a long ride. Diego's distance y from the start of the trail, in miles, h hours after 1:00pm is given below to the left. Note that the graph is linear on $[0, 1]$, $[2, 3]$, and $[4, 5]$. On the axes below to the right, carefully sketch a graph of Diego's velocity over the course of his ride. Be sure that your graph carefully indicates where his velocity is zero, positive, and negative, and where it is is increasing, decreasing, and constant.