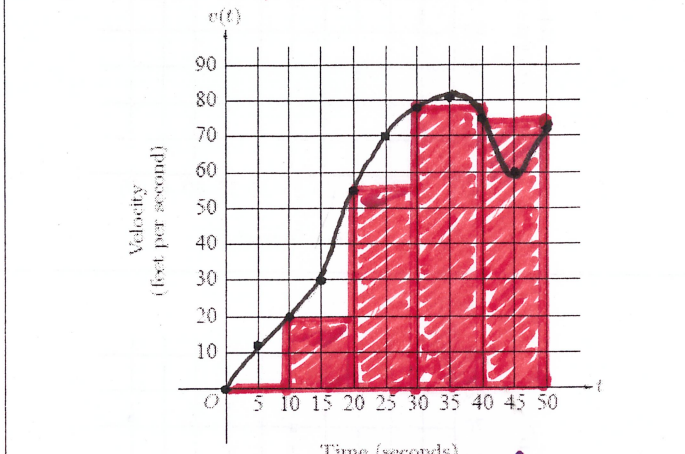
Section 6.5 Notes

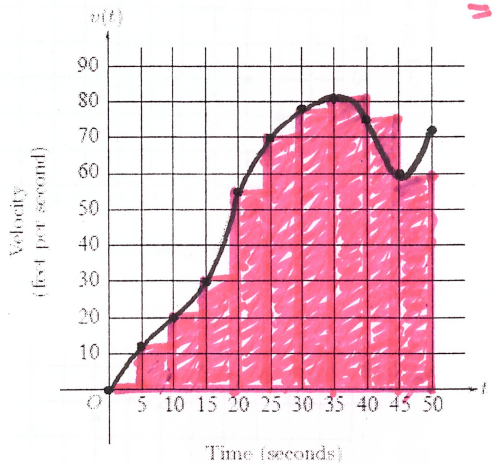
AP Calculus BC – Practice with Numerical Integration Approximation Methods

* REVIEW *

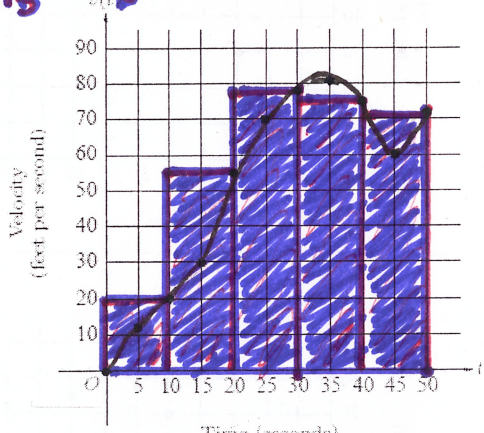
$LRAM_5 = 10(0+20+55+78+75) = 2280$

$LRAM_{10} = 5(0+12+20+30+55+70+78+82+75+60) = 2410$

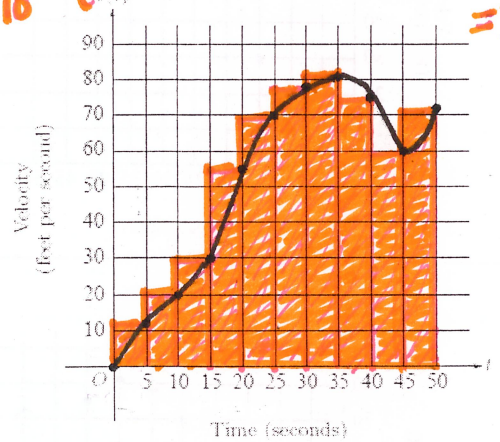




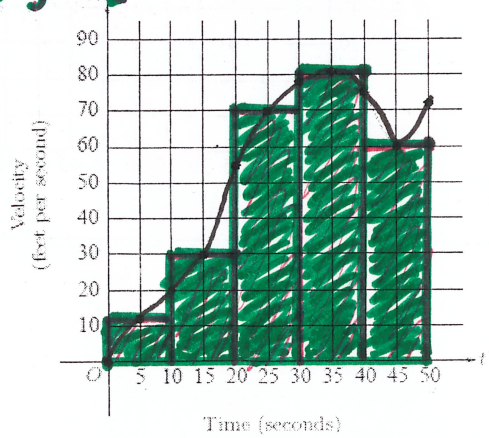
$RRAM_5 = 10(20+55+78+75+72) = 3000$



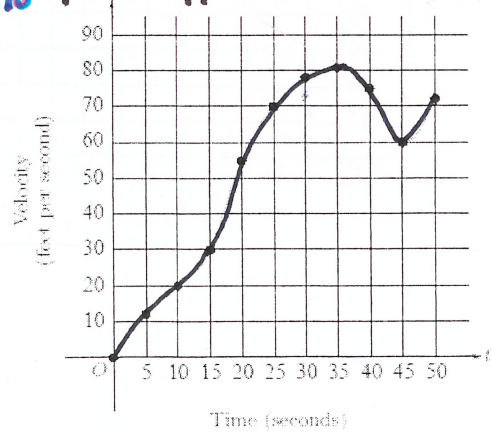
$RRAM_{10} = 5(12+20+30+55+70+78+82+75+60+72) = 2710$



$MRAM_5 = 10[12+30+70+82+60] = 2540$



$MRAM_{10}$ = Not Applicable!



** $\frac{LRAM_n + RRAM_n}{2} \neq MRAM_n$

*TRAPEZOID AREA:

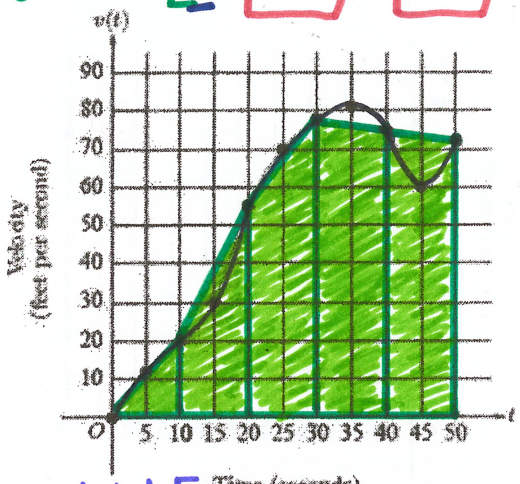
$A = \frac{1}{2}(a+b)\cdot h$ ← widths

AP/IB Calculus BC

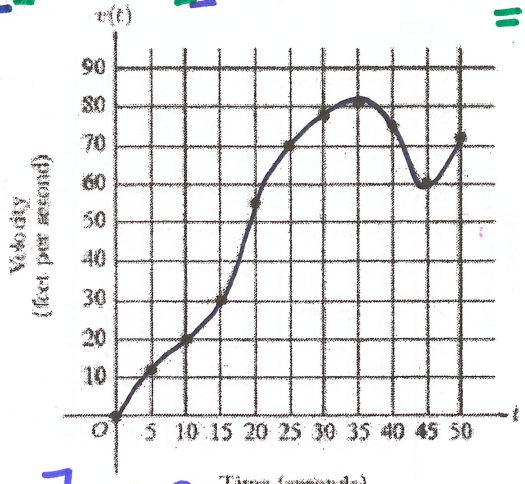
Practice with Numerical Integration Approximation Methods

$Trap_5 = \frac{1}{2}(10)[(0+20)+(20+55)+(55+78)+(78+75)+(75+72)] = \frac{1}{2}(10)[0+2(20+55+78+75)+72]$

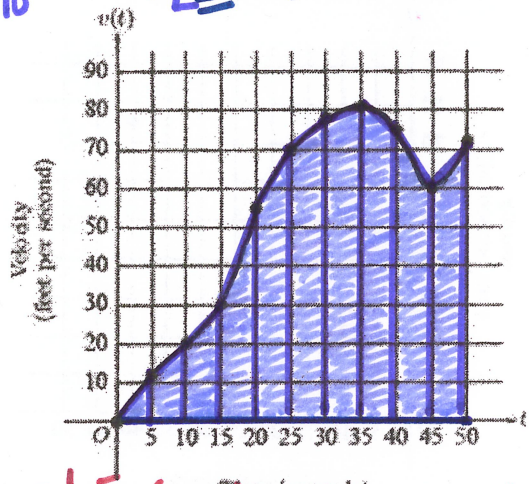
$= 2640$

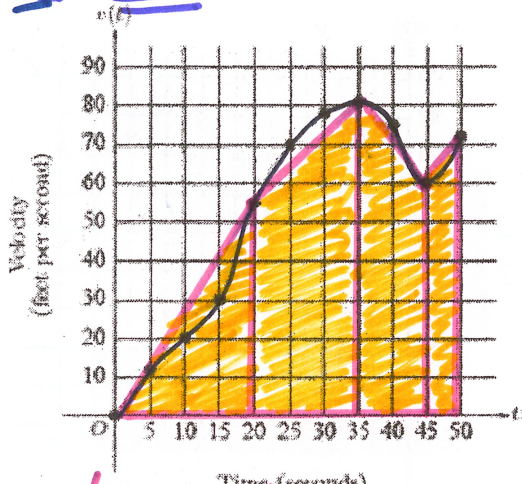


t (seconds)	v(t) (feet per second)
0	0
5	12
10	20
15	30
20	55
25	70
30	78
35	82
40	75
45	60
50	72



$Trap_{10} = \frac{1}{2}(5)[0+2(12+20+30+55+70+78+82+75+60)+72] = 2590$



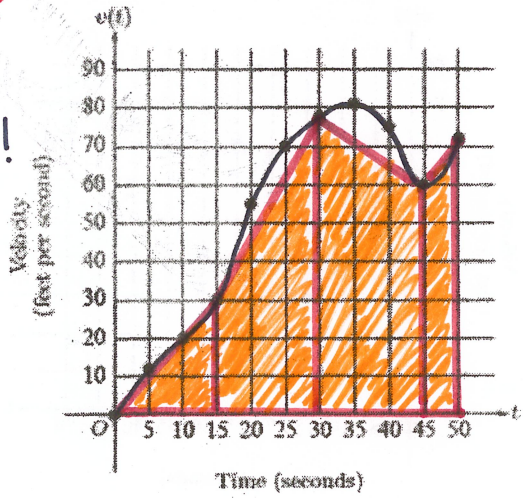


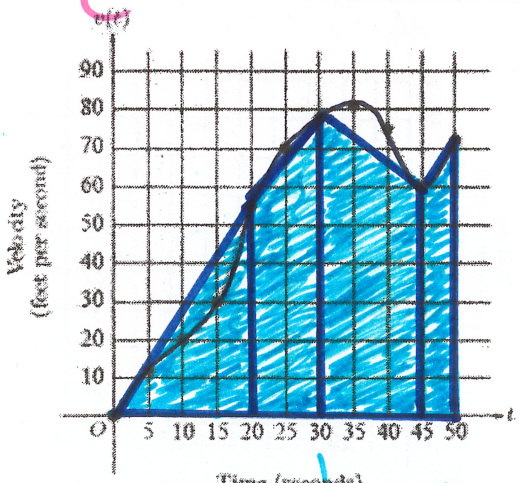
$Trap_4 = \frac{1}{2}[15(0+30)+15(30+78)+15(78+60)+5(60+72)]$

$= 2400$

(Another close one: 2617.5)

Not Equal Spacing!





(Closest $Trap_4$ to actual value): 2580