THE LINK—Communicating What We Know About:

Velocity of a car traveling on a straight road

Graph –Velocity

This is the graph of the velocity, $v(t)$, in ft/sec, of a car traveling on a straight road, for $0 \le t \le 50$.

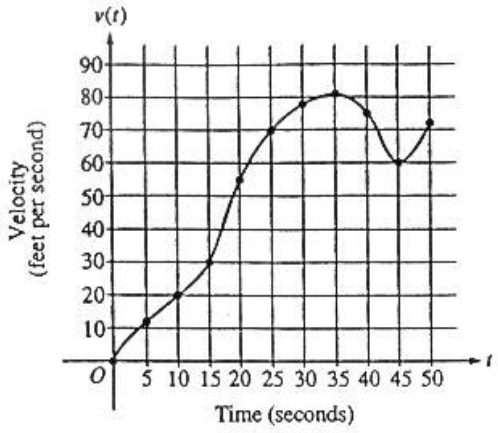

Table of Values—Velocity

This is a table of values for $v(t)$ at 5 second intervals of time t.

t (seconds)	$v(t)$ (ft/sec)
0	0
5	12
10	20
15	30
20	55
25	70
30	78
35	81
40	75
45	60
50	72

Acceleration

A. During what intervals of time is the acceleration of the car positive? Give a reason for your answer.

B. Find the average acceleration of the car, in ft/sec^2, over the time interval $0 \le t \le 50$.

C. Find one approximation for the acceleration of the car, in ft/sec^2, at t = 40. Show the computations you used to arrive at your answer.

Accumulation

D. Approximate $\int_0^{50} v(t)\,dt$ with a Riemann sum, using the midpoints of five subintervals of equal length. Using correct units, explain the meaning of this integral.

(1998 AP Calculus AB Question # 3)