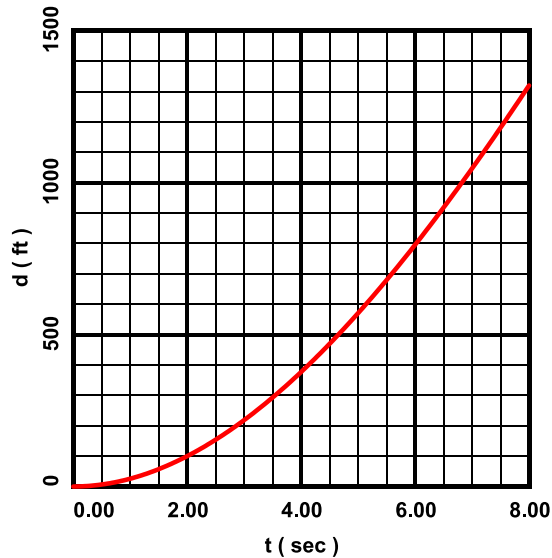


The graph below shows the distance d , in feet, traveled by a car as a function of time t , in seconds, during an 8-second, 0.25-mile (1320 ft) drag race.



The equation of the curve is

$$d = \frac{165}{224}(36t^2 - t^3).$$

a) Using the equation, fill out the table.

t	d
0	
2	
4	
6	
8	

b) From the table, calculate the velocities

$$v = \frac{\Delta d}{\Delta t}$$

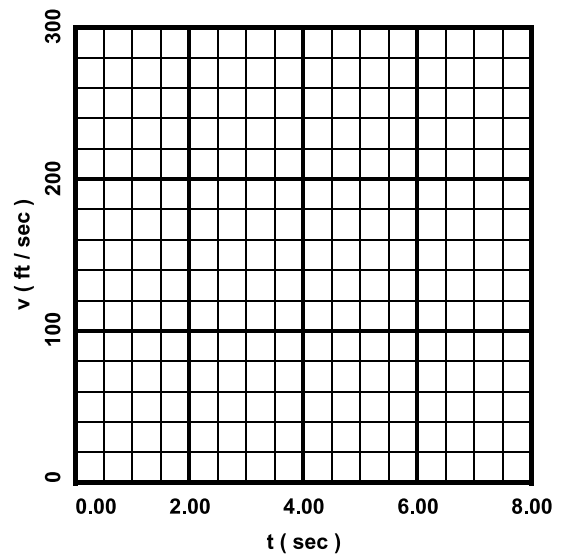
over the intervals

- i) $0 \leq t \leq 2 \Rightarrow v(1)$
- ii) $2 \leq t \leq 4 \Rightarrow v(3)$
- iii) $4 \leq t \leq 6 \Rightarrow v(5)$
- iv) $6 \leq t \leq 8 \Rightarrow v(7)$

c) Using your results from part b, fill out the table.

t	v
1	
3	
5	
7	

d) Graph the points from the table in part c on the grid below.



e) Find the quadratic regression equation for the points in the table in part c. $r^2 = ?$

f) Graph the regression equation on the grid in part d.