

Math 112: Distance Problem

We are provided with velocity data for a moving object over the time interval $0 \leq t \leq 20$. We would like to estimate the distance the object has traveled in this time interval.

t (s)	0	5	10	15	20
$v(t)$ (m/s)	25	32	36	30	22

1. Estimate the distance that the object traveled in the first 5 seconds.
2. What assumption(s) did you make to produce your estimate?
3. Estimate the distance that the object traveled over the whole 20 second interval.
4. What assumption(s) did you make to produce your estimate?
5. What information is needed to determine the distance traveled more accurately?
6. Draw a picture to illustrate the connection between the distance problem and the area problem.