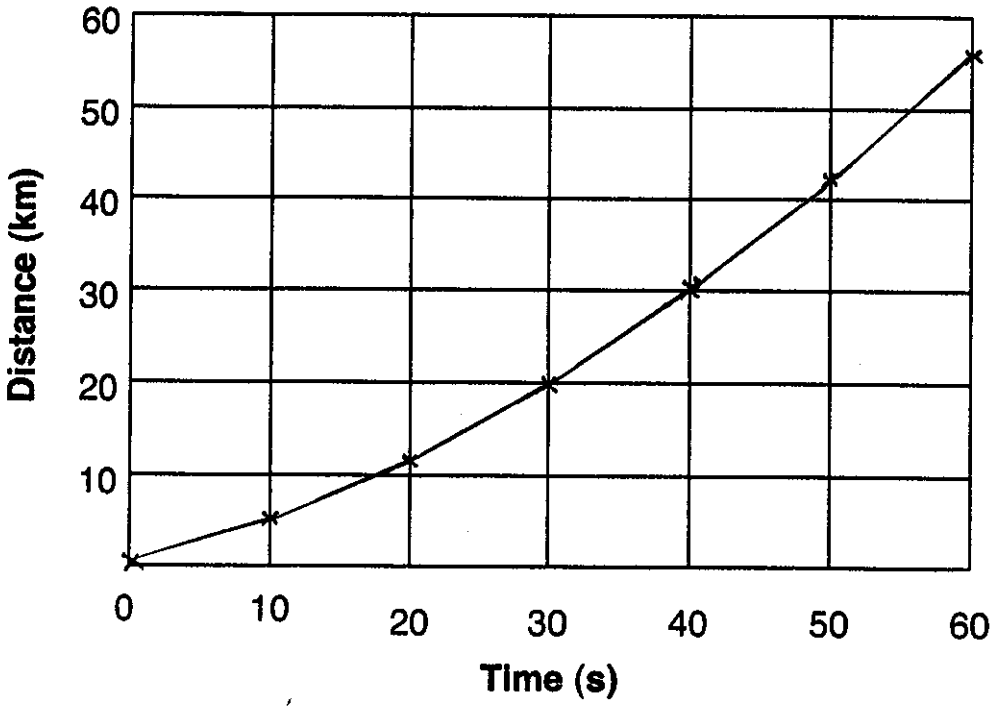
GRAPHING DISTANCE VS. TIME

Name Key

Plot the following data on the graph and answer the questions below.

Distance (km)	Time (s)
0	0
5	10
12	20
20	30
30	40
42	50
56	60



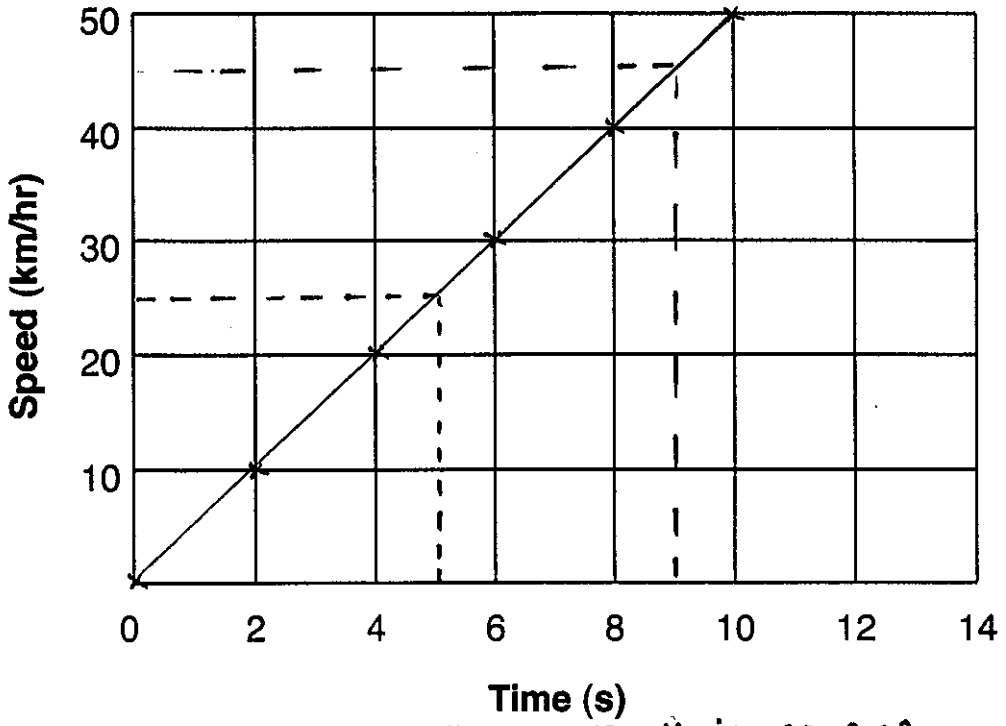
1. What is the average speed at t = 20 s? $v = \frac{12\text{ km}}{20\text{ s}} = \frac{0.6\text{ km}}{\text{s}}$
2. What is the average speed at t= 30 s? $v = \frac{20\text{km}}{30\text{s}} = 0.67\text{ km/s}$
3. What is the acceleration between 20 s and 30 s? $a = \frac{0.67\text{ km/s} - 0.6\text{ km/s}}{10\text{ s}} = 0.007\frac{\text{km}}{\text{s}^2} = 0.7\frac{\text{m}}{\text{s}^2}$
4. What is the average speed at t = 40 s? $v = \frac{30\text{ km}}{40\text{s}} = 0.75\text{ km/s}$
5. What is the average speed at t = 60 s? $v = \frac{56\text{ km}}{60\text{s}} = 0.93\text{ km/s}$
6. What is the acceleration between 40 s and 60 s? $a = \frac{0.93\text{ km/s} - 0.75\text{km/s}}{20\text{ s}} = 0.009\frac{\text{km}}{\text{s}^2} = 0.9\frac{\text{m}}{\text{s}^2}$
7. Is the object accelerating at a constant rate? No

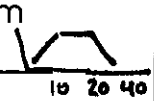
GRAPHING SPEED VS. TIME

Name Key

Plot the following data on the graph and answer the questions below.

Speed (km/hr)	Time (s)
0.0	0
10.0	2
20.0	4
30.0	6
40.0	8
50.0	10



1. As time increases, what happens to the speed? v increases
2. What is the speed at 5 s? 25 km/hr
3. Assuming constant acceleration, what would be the speed at 14 s? 70 km/hr
4. At what time would the object reach a speed of 45 km/hr? @ 9 s
5. What is the object's acceleration? 5 km/h/s
6. What would the shape of the graph be if a speed of 50.0 km/hr is maintained from 10 s to 20 s? It would be flat (slope = 0) from 10s to 20s
7. Based on the information in Problem 6, calculate the acceleration from 10 s to 20 s. a = 0 km/h/s, no acceleration.
8. What would the shape of the graph be if the speed of the object decreased from 50.0 km/hr at 20 s to 30 km/hr at 40 s? the graph would go down 

9. What is the acceleration in Problem 8? $a = \frac{30\ km/hr - 50\ km/hr}{20\ sec}$ = −1 km/hr/s