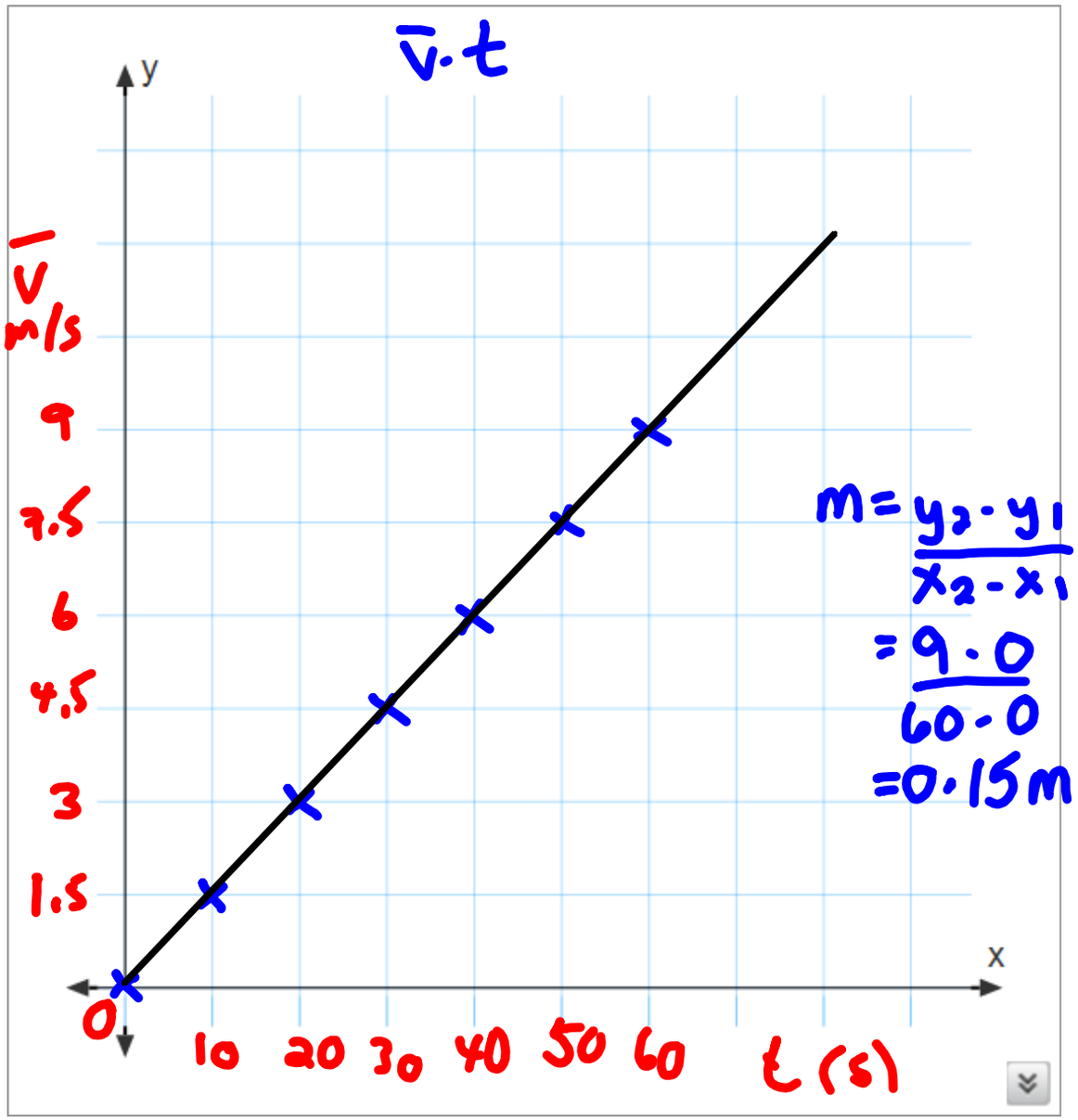
Velocity Time Graphs and Acceleration

Draw a graph for the following data and draw a line of best fit with slope.

t (s)	v (m/s)
0	0
10	1.5
20	3
30	4.5
40	6
50	7.5
60	9

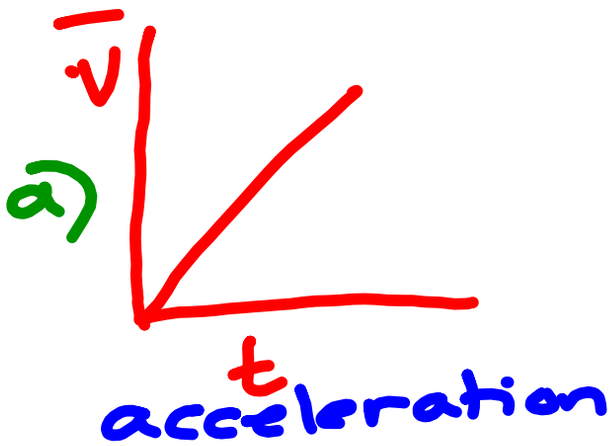


~ The slope of a v-t graph equals acceleration.
~ if the graph is a straight line this indicates uniform acceleration.

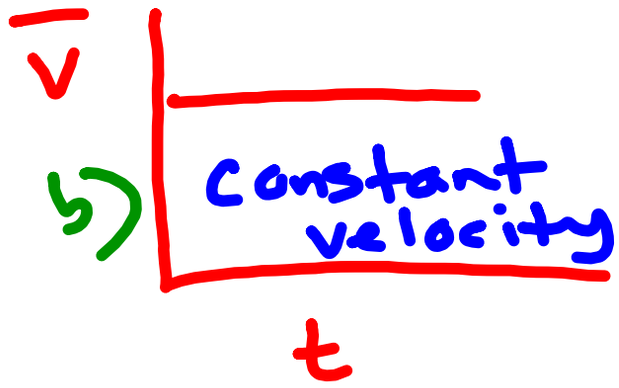
~ negative slope on a $\bar{v}t$ graph represents negative acceleration (deceleration)

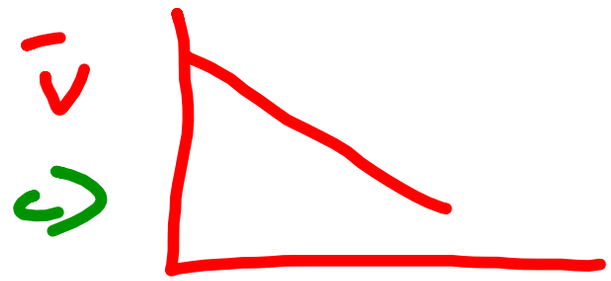
Examples: Find the acceleration of a car moving at 105 km/h that comes to a stop in 6.0 s.

Example: Find the time required for a plane to change its velocity from 250 km/h [S] to 250 km/h [N] while accelerating uniformly at $8.0\ m/s^2$ [N]

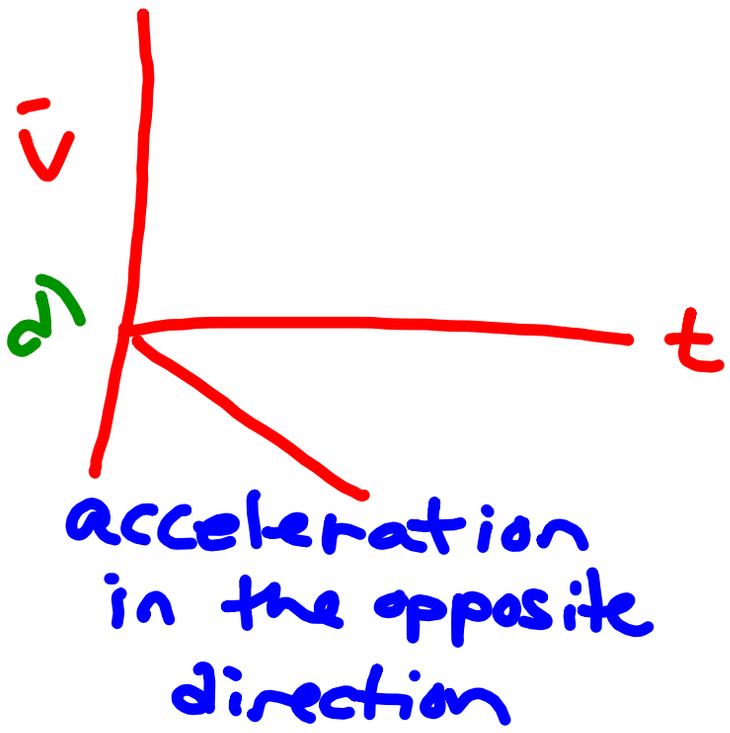


acceleration

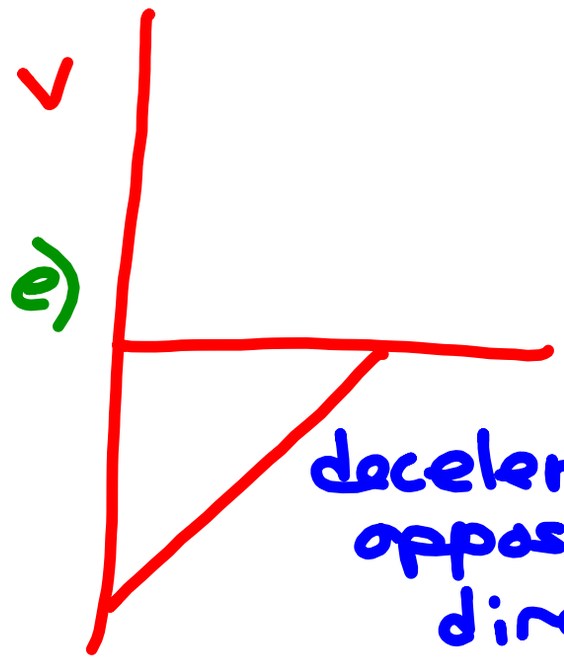




decreasing velocity (negative acceleration)



acceleration in the opposite direction



deceleration opposite direction