Chapter 39: Speed, Velocity and Acceleration.

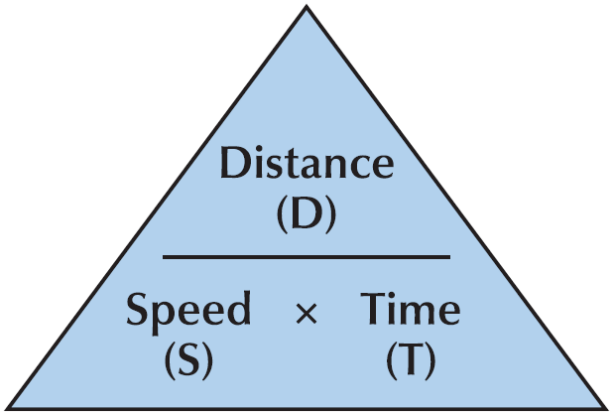
Speed.

The speed of an object is the distance travelled per unit time.

The unit of speed is m/s

Example:

Calculate the speed of an object that travels 200m in 5 seconds.



$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{200}{5} = 40\text{m/s}$$

HIGHER

Velocity

Velocity is speed in a given direction.

Velocity has the same formula as speed, but the answer **must** include a direction.

Acceleration.

Acceleration is the change in velocity per second.

The unit of acceleration is m/s^2

Example:

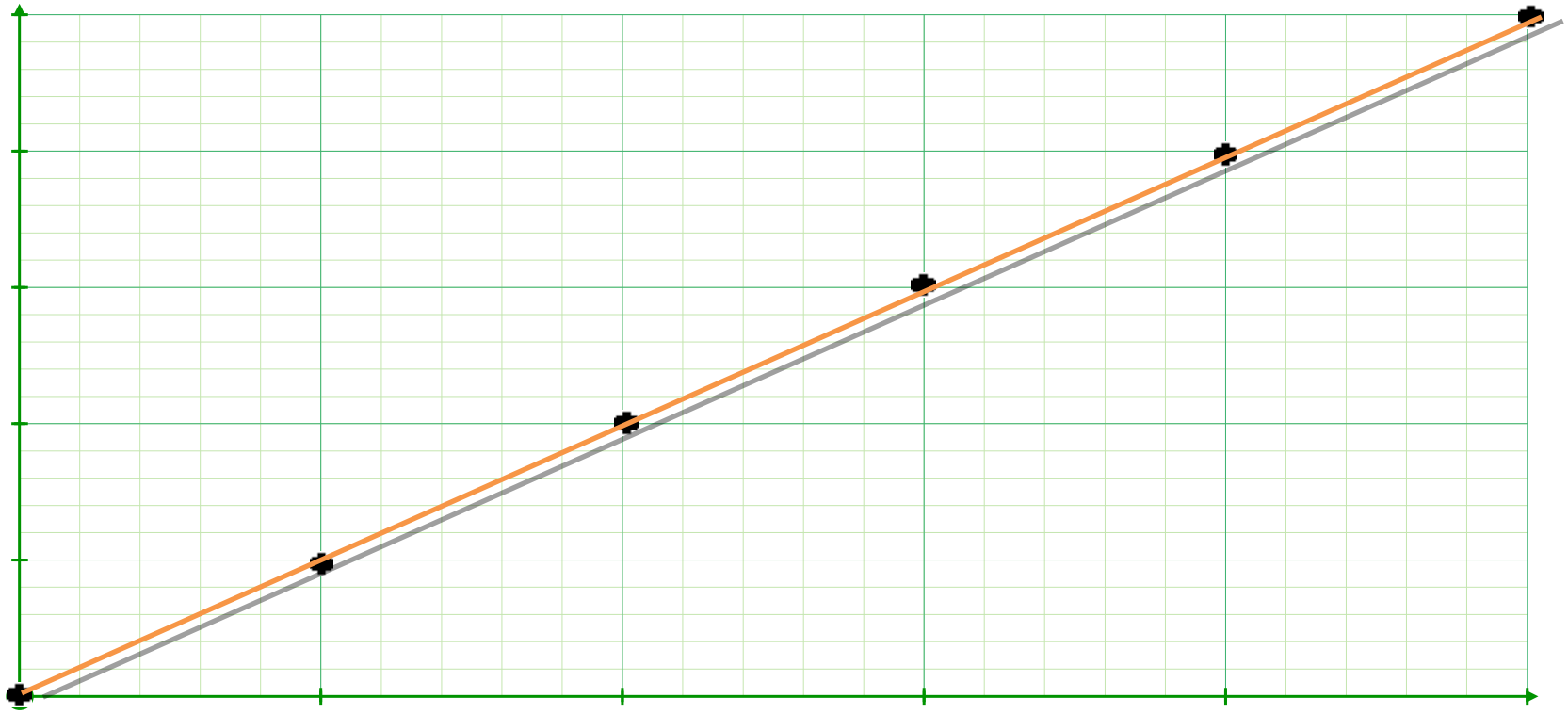
An object increases its velocity from 20m/s to 80m/s in 10seconds. Calculate its acceleration.

$$\text{Acceleration} = \frac{\text{Change of Velocity}}{\text{Time Taken}} = \frac{80 - 20}{10} = \frac{60}{10} = 6\text{m/s}^2$$

Distance/Time Graphs.

The table shows the distance travelled by a car at different times.

Time (s)	0	1	2	3	4	5
Distance (m)	0	10	20	30	40	50



Velocity/Time Graphs

The table shows the velocity of a car at different times.

Time (s)	0	1	2	3	4	5
Velocity (m/s)	0	5	10	15	20	25