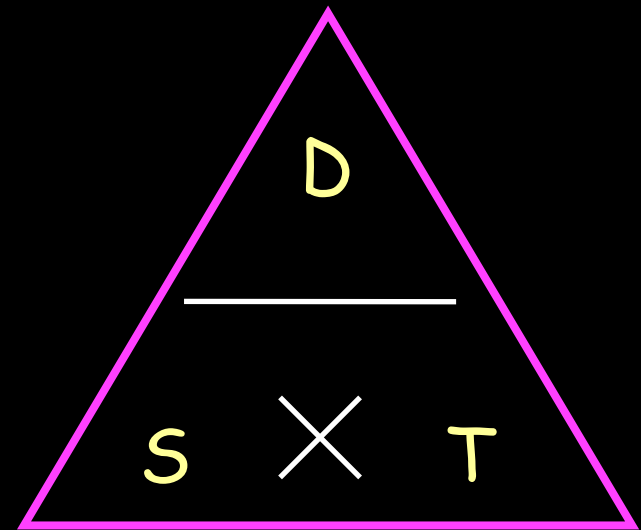


Distance, Speed and Time

$$\text{Speed} = \frac{\text{distance (in metres)}}{\text{time (in seconds)}}$$

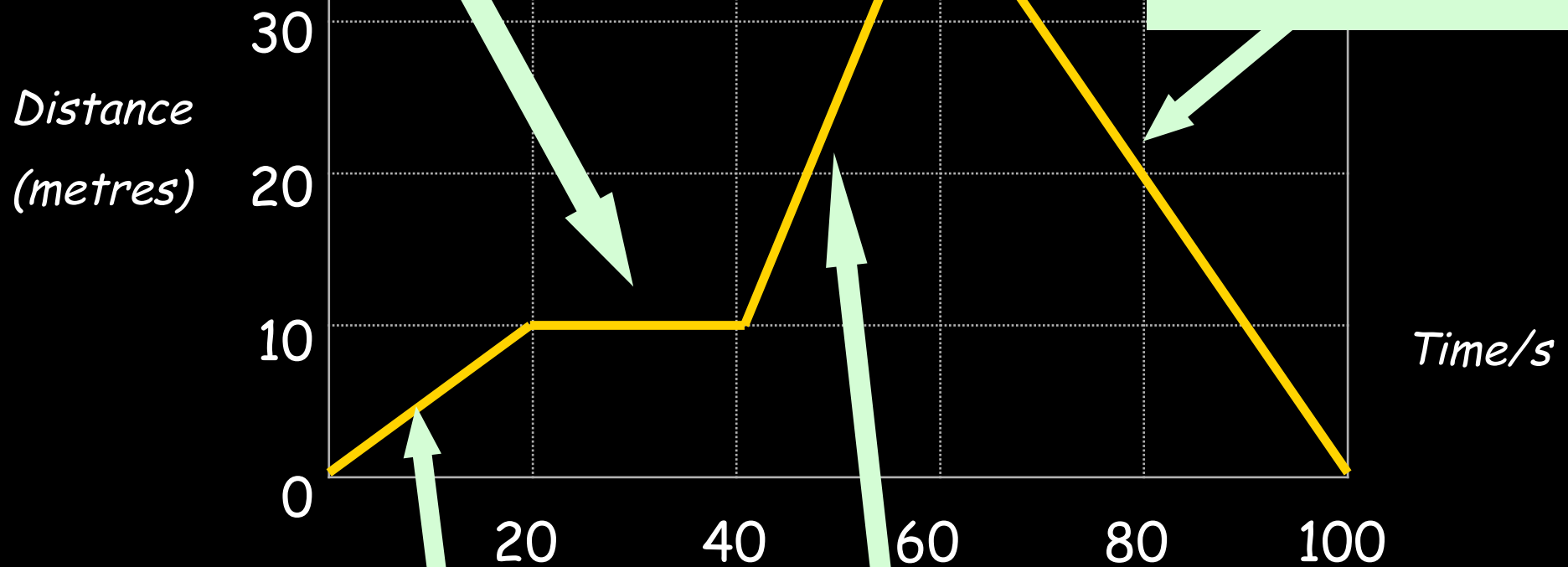


- 1) Dave walks 200 metres in 40 seconds. What is his speed?
- 2) Laura covers 2km in 1,000 seconds. What is her speed?
- 3) How long would it take to run 100 metres if you run at 10m/s?
- 4) Steve travels at 50m/s for 20s. How far does he go?
- 5) Susan drives her car at 85mph (about 40m/s). How long does it take her to drive 20km?

Distance-time graphs

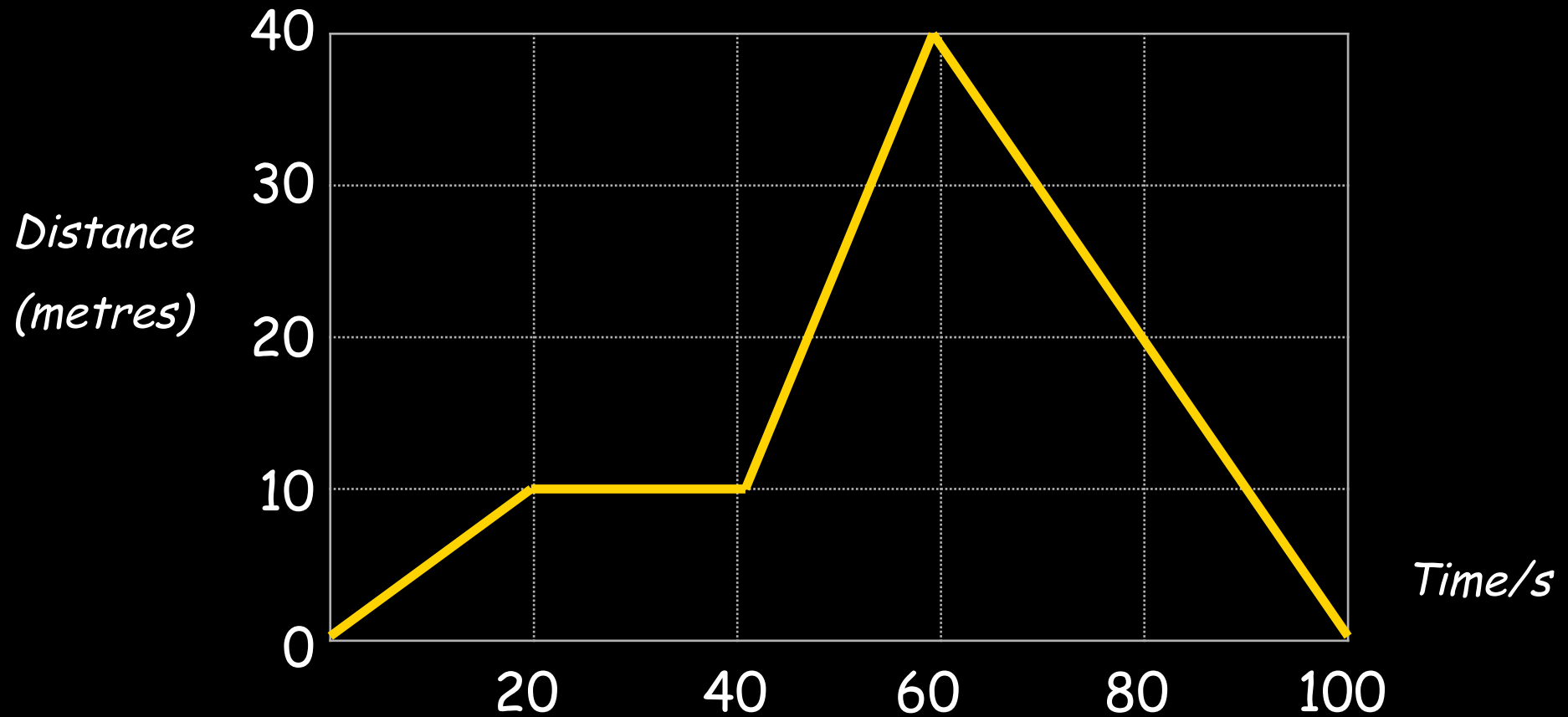
2) Horizontal line =

4) Diagonal line downwards =



1) Diagonal line =

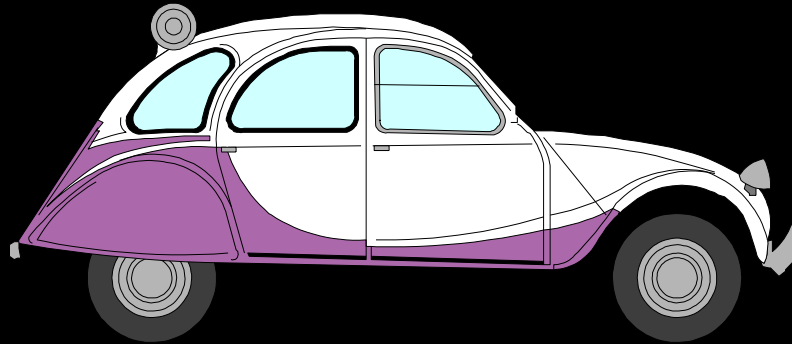
3) Steeper diagonal line =



- 1) What is the speed during the first 20 seconds?
- 2) How far is the object from the start after 60 seconds?
- 3) What is the speed during the last 40 seconds?
- 4) When was the object travelling the fastest?

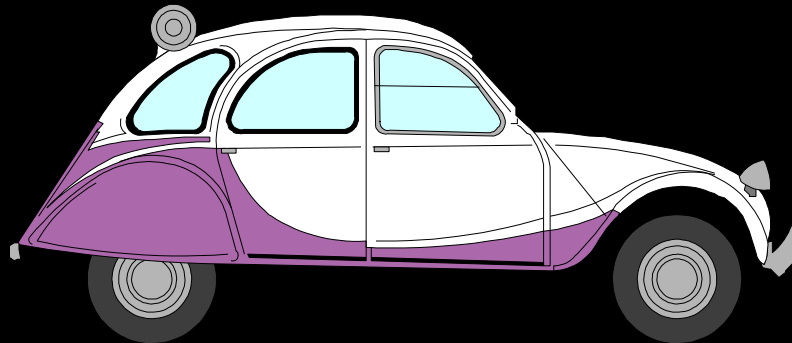
Speed vs. Velocity

Speed is simply how fast you are travelling...



This car is travelling at a speed of 20m/s

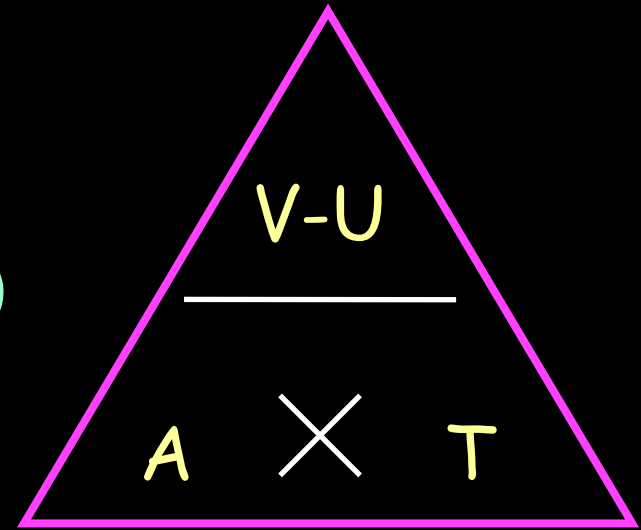
Velocity is “speed in a given direction”...



This car is travelling at a velocity of 20m/s east

Acceleration

Acceleration = $\frac{\text{change in velocity (in m/s)}}{\text{time taken (in s)}}$
(in m/s^2)

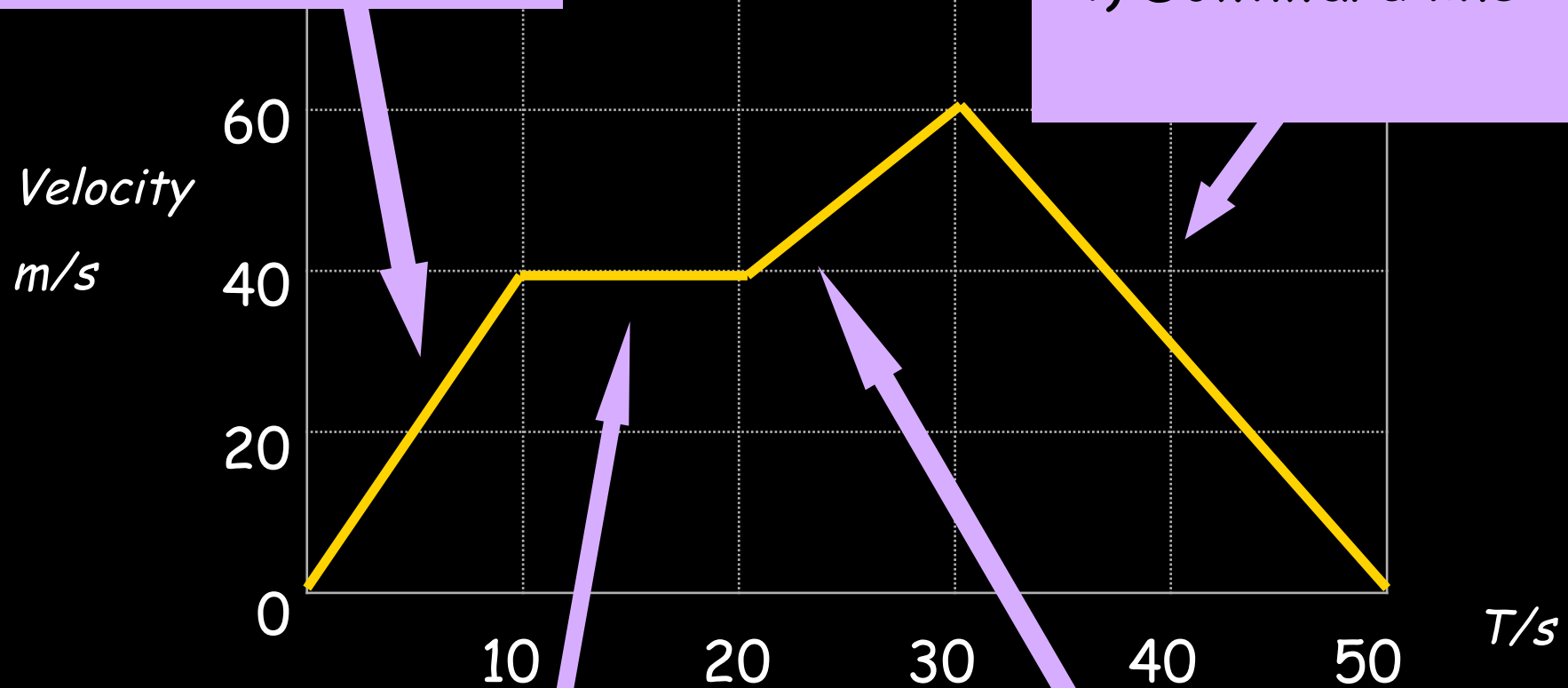


- 1) A cyclist accelerates from 0 to 10m/s in 5 seconds. What is her acceleration?
- 2) A ball is dropped and accelerates downwards at a rate of 10m/s^2 for 12 seconds. How much will the ball's velocity increase by?
- 3) A car accelerates from 10 to 20m/s with an acceleration of 2m/s^2 . How long did this take?
- 4) A rocket accelerates from 1,000m/s to 5,000m/s in 2 seconds. What is its acceleration?

Velocity-time graphs

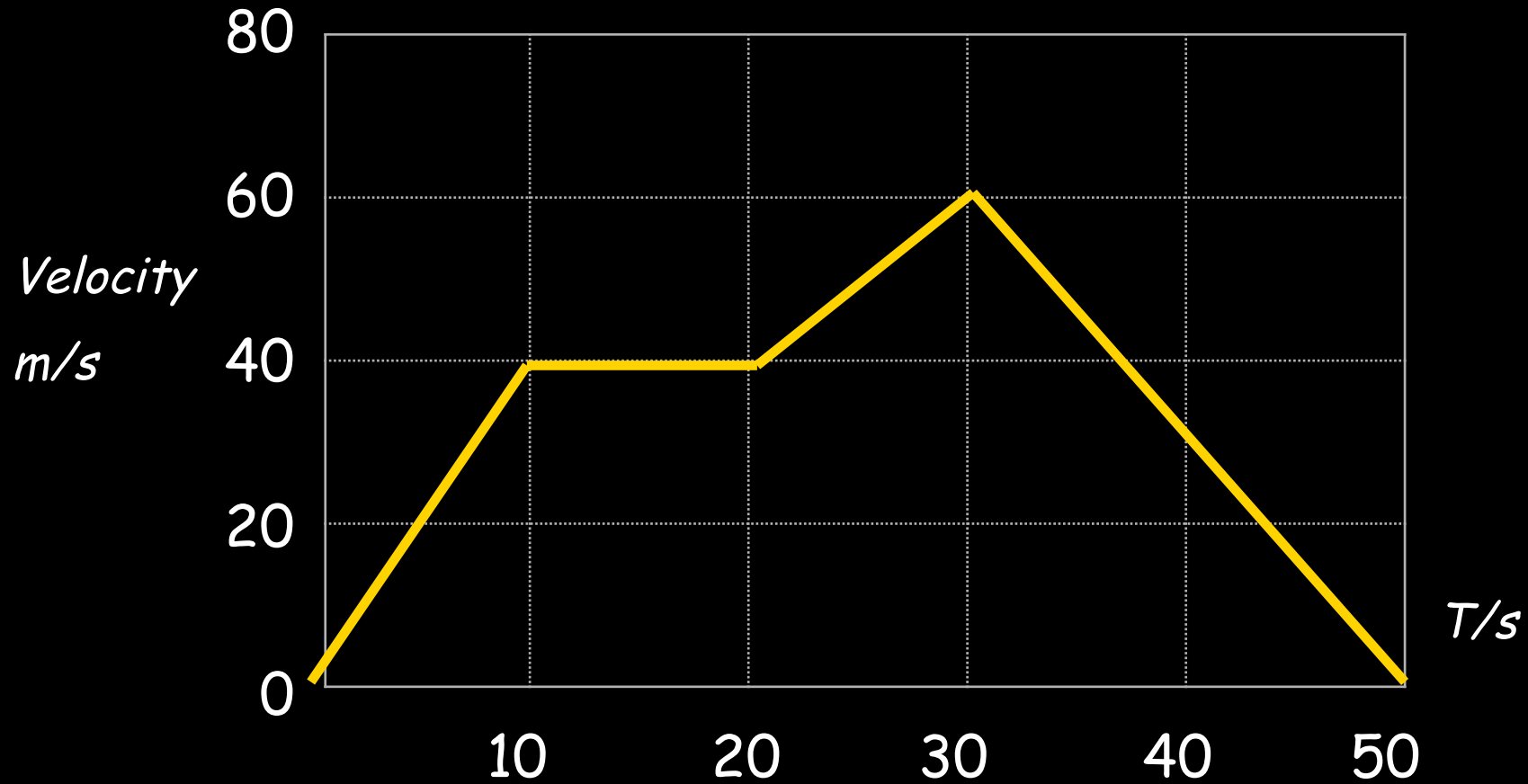
1) Upwards line =

4) Downward line =



2) Horizontal line =

3) Upwards line =



- 1) How fast was the object going after 10 seconds?
- 2) What is the acceleration from 20 to 30 seconds?
- 3) What was the deceleration from 30 to 50s?
- 4) How far did the object travel altogether?