Equations of motion

$v = u + at$

$v^2 = u^2 + 2as$

$s = ut + \frac{1}{2} a t^2$

Where u = initial velocity ( )

v = final velocity ( )

s = displacement (distance from start) ( )

a = acceleration ( )

t = time ( )

Add the correct units

Questions

In each question identify what information is given and write down the symbol and the data. **This will help you to identify which equation to use.**

Then write the formula that you will use.

Rearrange the formula if you need to.

Substitute the data.

Calculate the answer and give the unit.

Do all work in your exercise book.

1. A cyclist accelerates at 0.5 m/s^2 from a standing start.
   a) What is his velocity after 10 seconds?
   b) What is his velocity after 15 seconds?

2. If the cyclist travels at 10 m/s and then brakes hard and stops after 4seconds of braking, what is his acceleration?

3. A car accelerates at 2m/s^2 from standstill for a time of 5 seconds. How far will he have travelled in this time?

4. If a car accelerates from 10 m/s at an acceleration of 1.5 m/s^2 for 20 seconds:
   a) What is his final speed?
   b) How far will he have travelled during this 20 seconds?