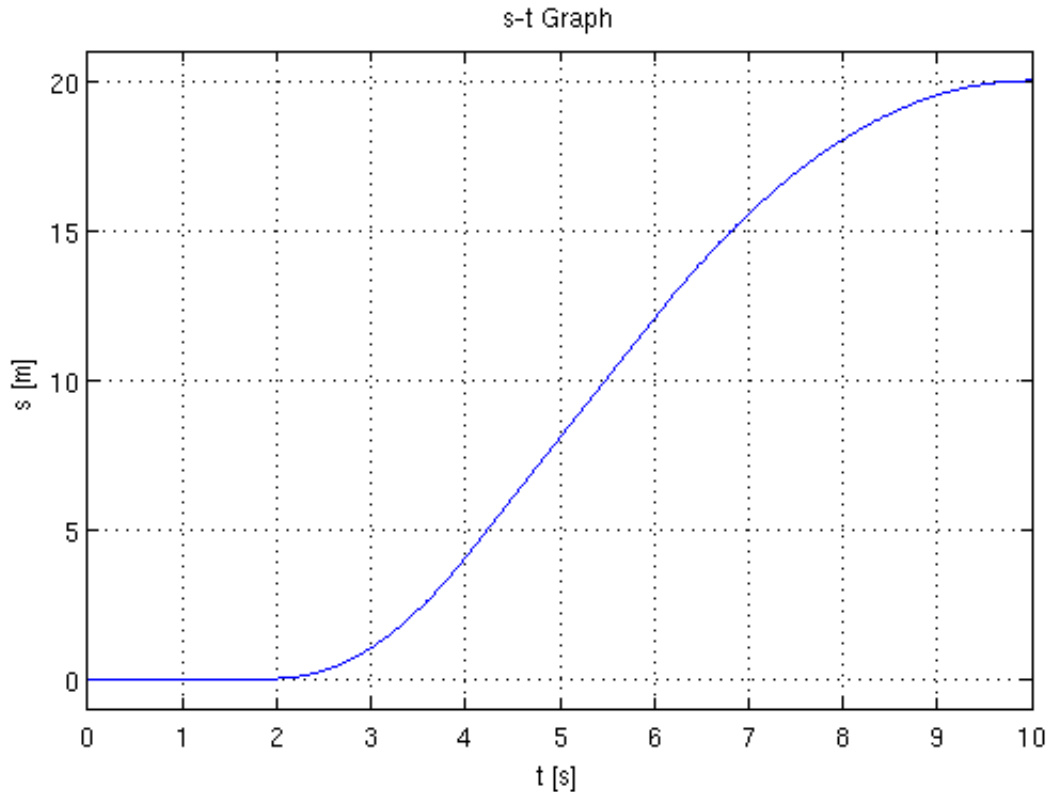


## 1D-Kinematics: s-t Graphs

A s-t graph plots the position (s) of an object as a function of time (t). The x-axis represents the time, the y-axis represents the position of an object.

In the example below, an object has moved in 10 seconds from its initial position at 0m to 20m.



The velocity at a certain time, is the slope of the graph at that moment.

The slope can be measured by drawing a tangent to the curve and measuring the change in position and the change in time. Over the time period measured, the average velocity is then:

$$v_{av} = \frac{\Delta s}{\Delta t}$$

### Tasks

1. What is the average velocity (magnitude and unit) between 0 and 2 seconds?
2. What is the average velocity (magnitude and unit) between 4 and 6 seconds?
3. What is the velocity at  $t=3s$  and  $t=8s$ ?
4. Based on the above, draw a v-t (velocity-time) Graph with time on the x-axis and v on the y-axis. Don't forget the units!