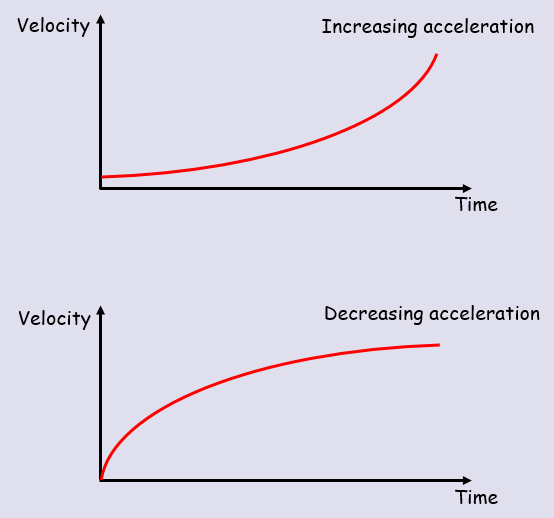
**11A Functions of Time**



1. A body moves in a straight line, such that its displacement, metres, from a point O at time seconds is given by for
2. Find the value of when
3. Find the time taken for the body to return to O.
4. A toy train travels along a straight track, leaving the start of the track at time . It then returns to the start of the track. The distance, metres, from the start of the track at time seconds is modelled by:

where

Explain why there is a time restriction on this model

1. A body moves in a straight line such that its velocity, , at time seconds is given by:

for

Find:

1. The initial velocity
2. The values of t when the body is instantaneously at rest
3. The value of t when the velocity is 64ms-1
4. The greatest speed of the body in the interval