

3.1.1 Write the equations, and general solutions, for as many problems as you can.

Question 3.1.1:

Given the differential equation $\frac{du}{dt} = 0$, where u represents position.

Solution:

The given differential equation can be rewritten as:

$$\frac{du}{dt} = 0$$

Integrating both sides with respect to t , we have:

$$\int \frac{du}{dt} dt = \int 0 dt$$

Simplifying the integration, we get:

$$u = C$$

where C is the constant of integration.

Therefore, the solution to the differential equation is $u = C$, where C is a constant, hence the object maintains a constant position.

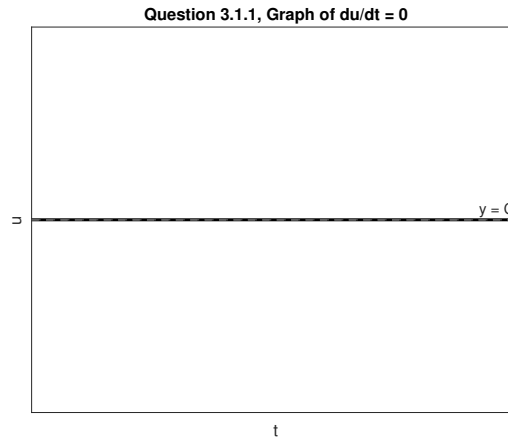


Figure 1: Graphical solution of 3.1.1