# A simple cost function with a control

Soumadeep Ghosh

Kolkata, India

**Abstract**

In this paper, I describe a simple cost function with a control.
The paper ends with "The End"

## Introduction

The **cost function** in an economy is not only a measure of its efficiency but also an indicator for investments into the economy.
In this paper, I describe a simple cost function with a control.

## A simple cost function with a control

A simple cost function with a control can be defined by the equations

$$c(t) = f(t) + v(t)$$
$$\frac{\partial f(t)}{\partial t} = 0$$
$$\frac{\partial c(t)}{\partial t} = 1 + Rv(t)$$
$$f(0) = F$$
$$v(0) = V$$

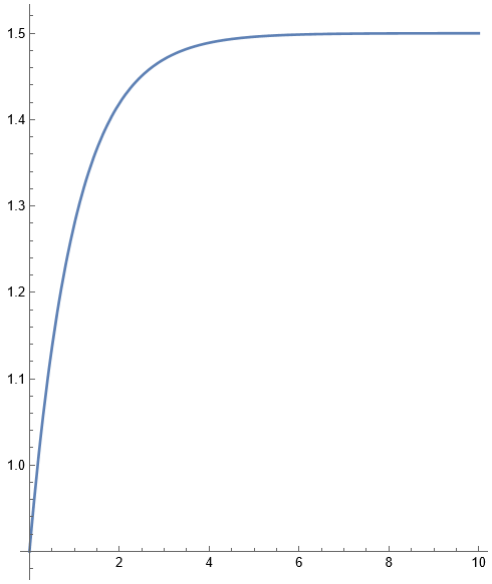
where

$c(t)$ is the cost function
$f(t)$ is the fixed cost function
$v(t)$ is the variable cost function
$R$ is the control
$F$ is the fixed cost at $t = 0$
$V$ is the variable cost at $t = 0$

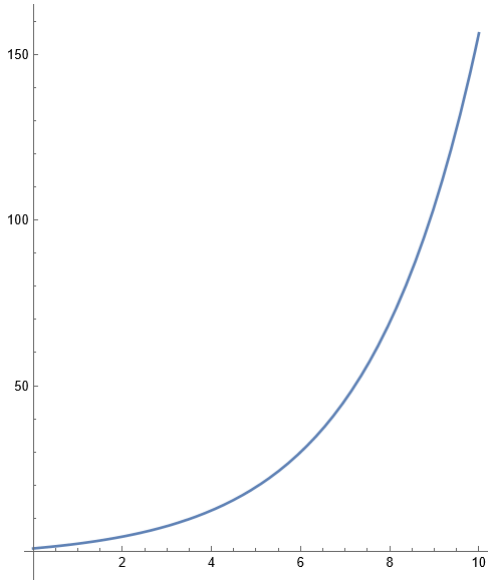
Solving the equations above yields

$$c(t) = F + \frac{e^{Rt}(1 + RV) - 1}{R}$$

## Graph of c(t) with negative R




## Graph of c(t) with positive R




## The End