

# Problemas Capítulo #7

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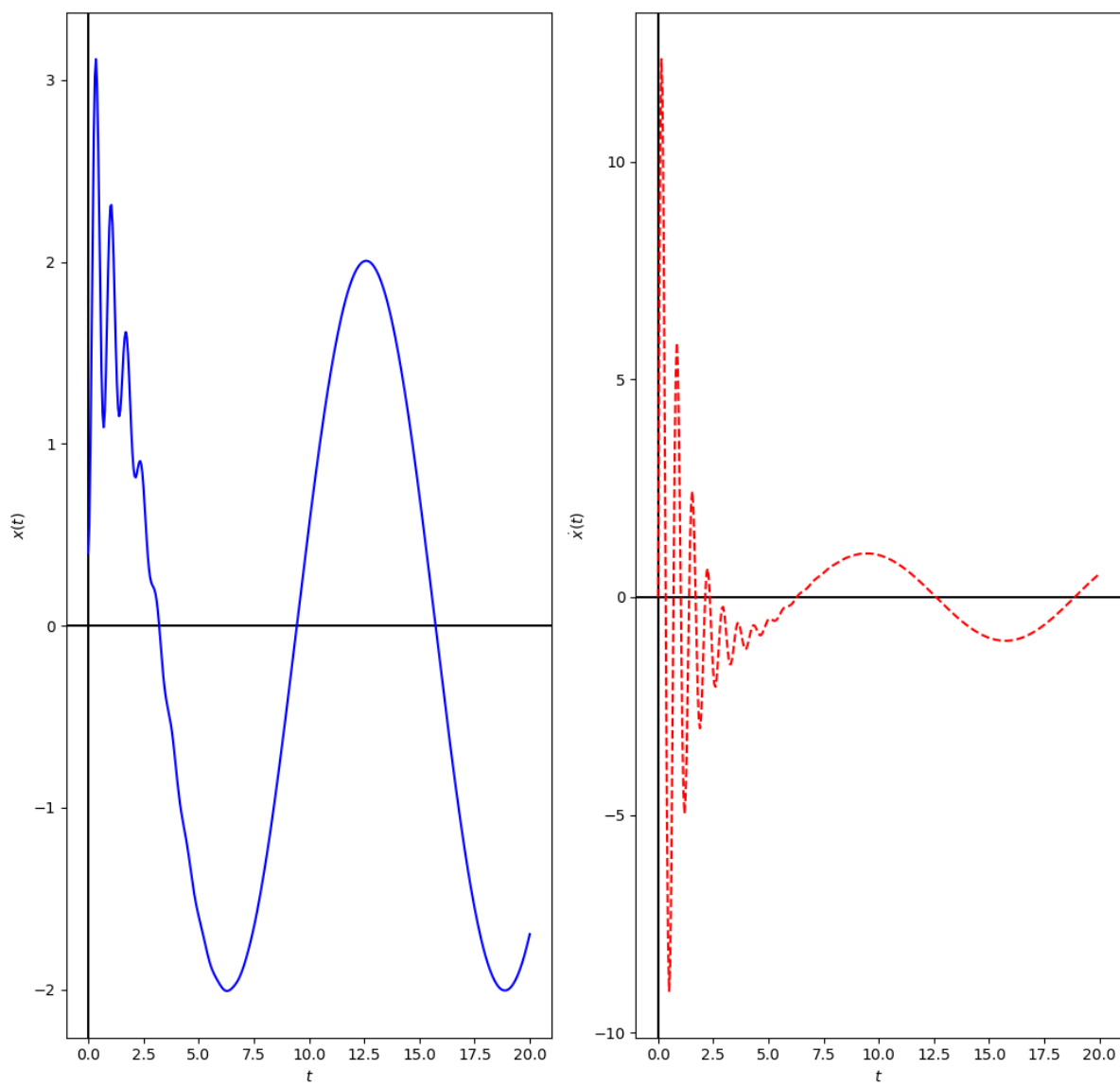
(Os códigos estão nas pastas, nesse diretório, nomeadas por problema. i.e.,  
problema7.3 -> ./Cod\_73.)

## Questão 7.3

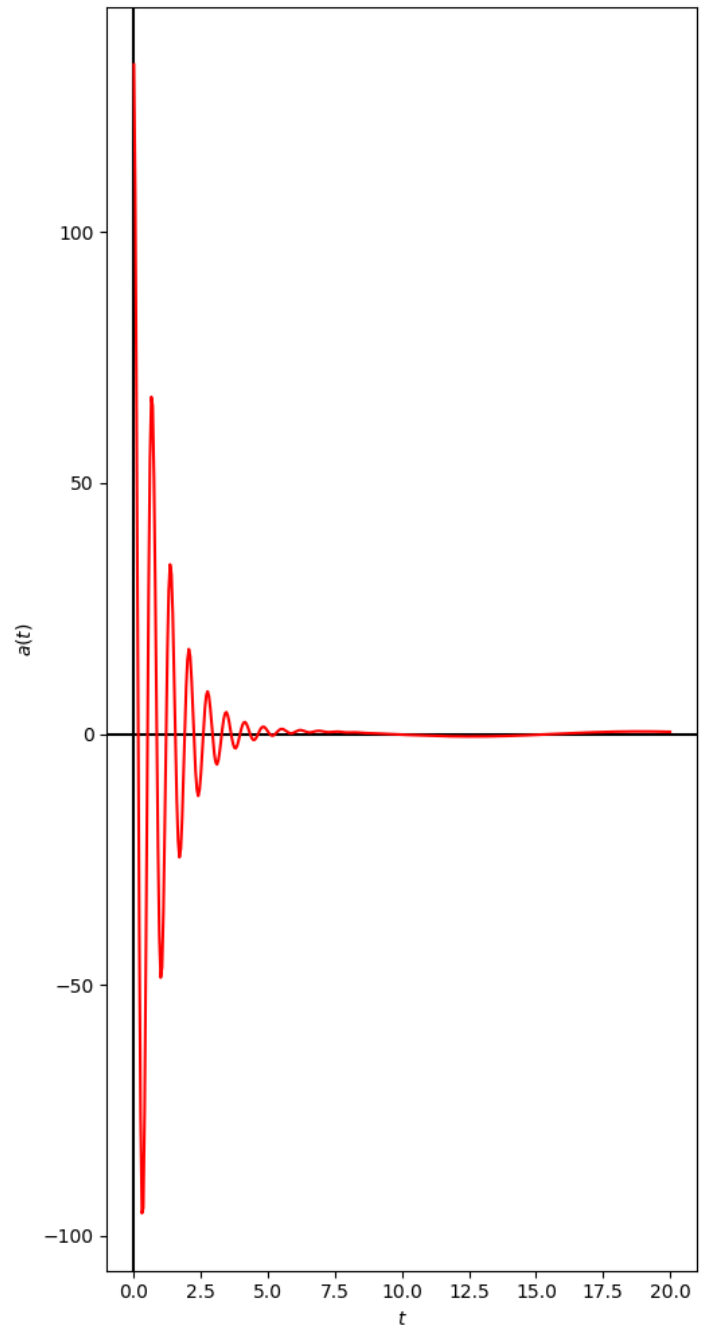
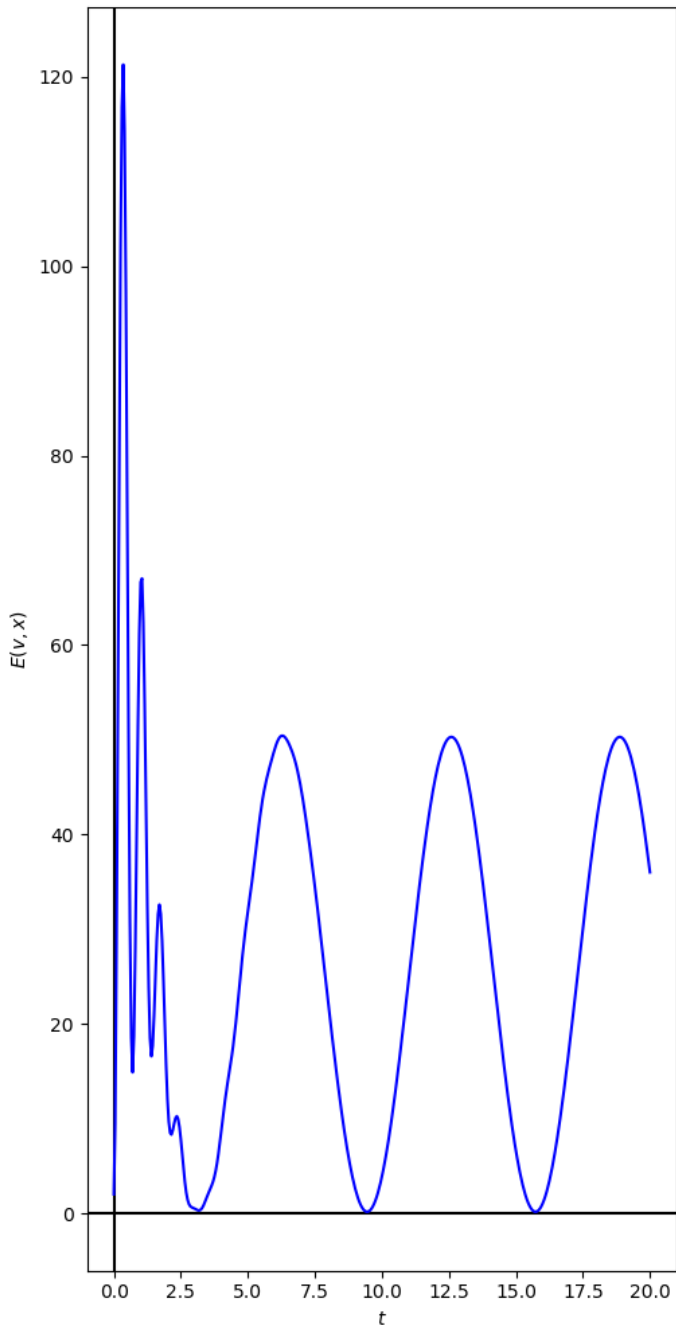
$$m\ddot{x}(t) + \epsilon\dot{x}(t) + kx(t) = F_e(t) \quad (1)$$

### Respostas

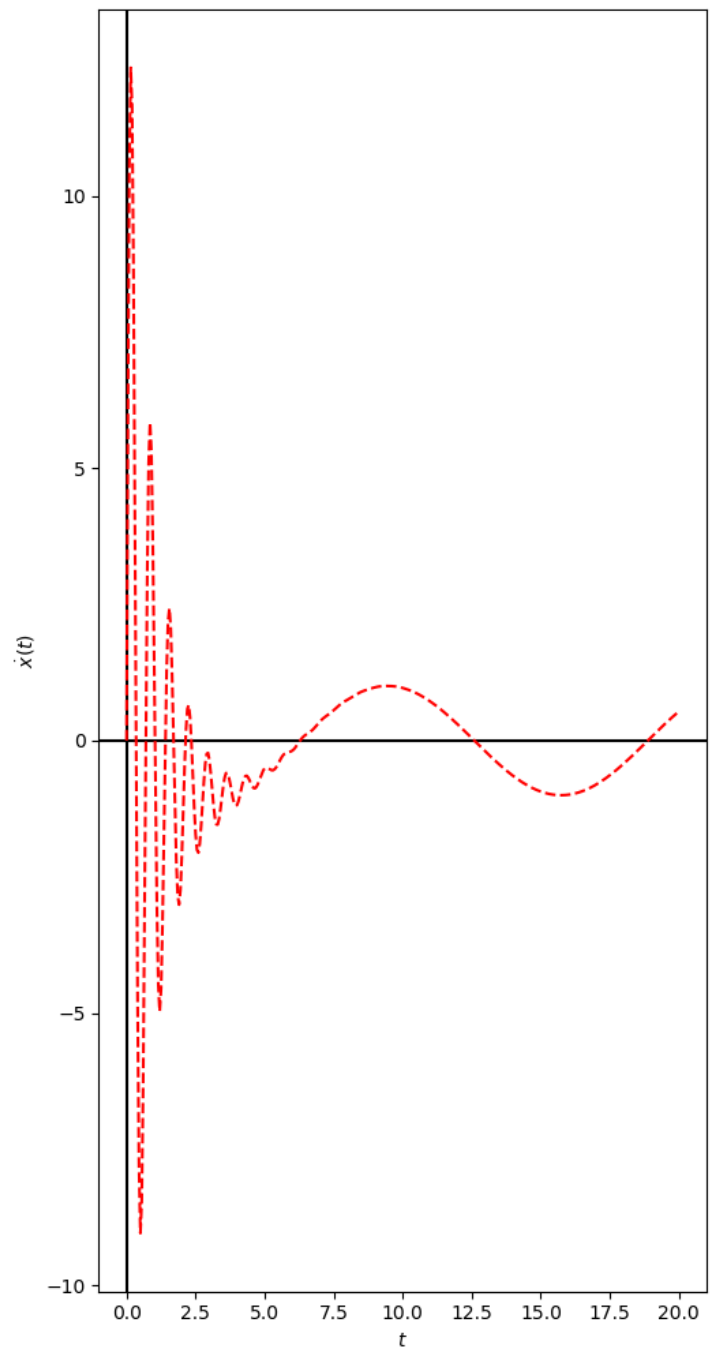
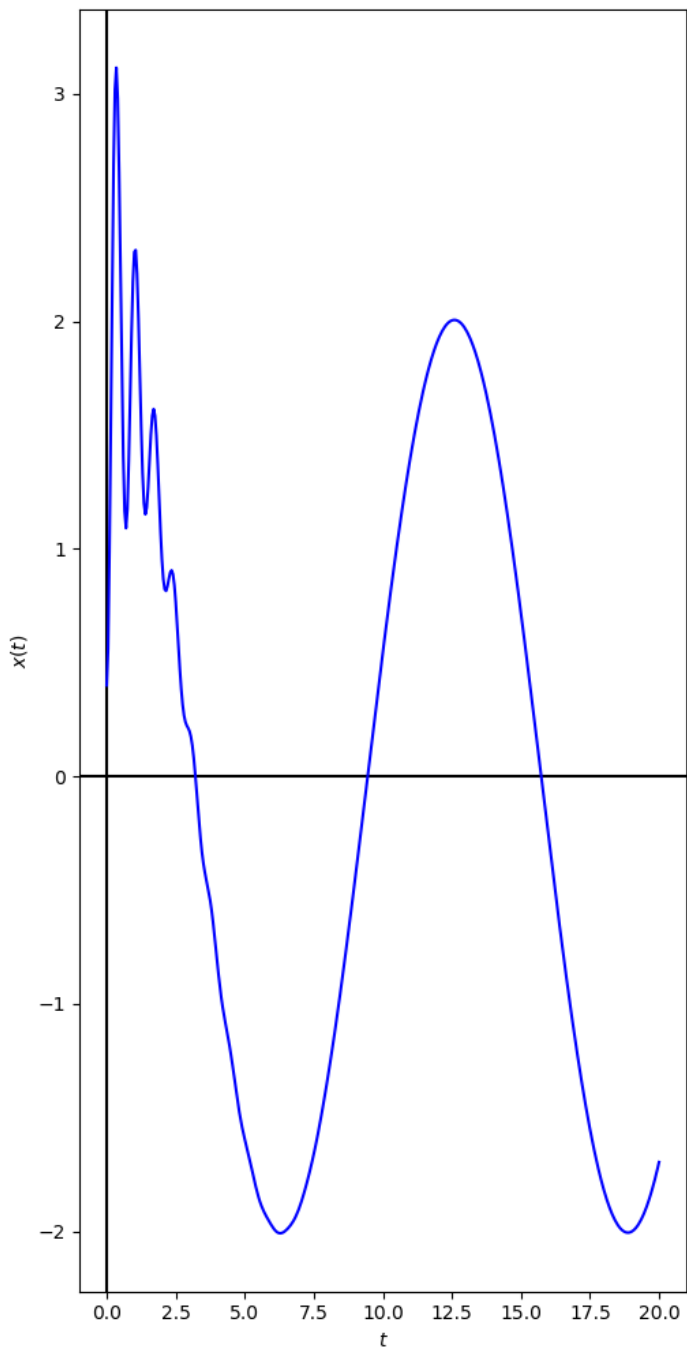
Q7.3(a),(b) gráfico  $x(t)$  vs  $t$  e  $v(t)$  vs  $t$



Q7.3(c),(d) gráfico  $E(t)$  vs  $t$ ;  $a(t)$  vs  $t$



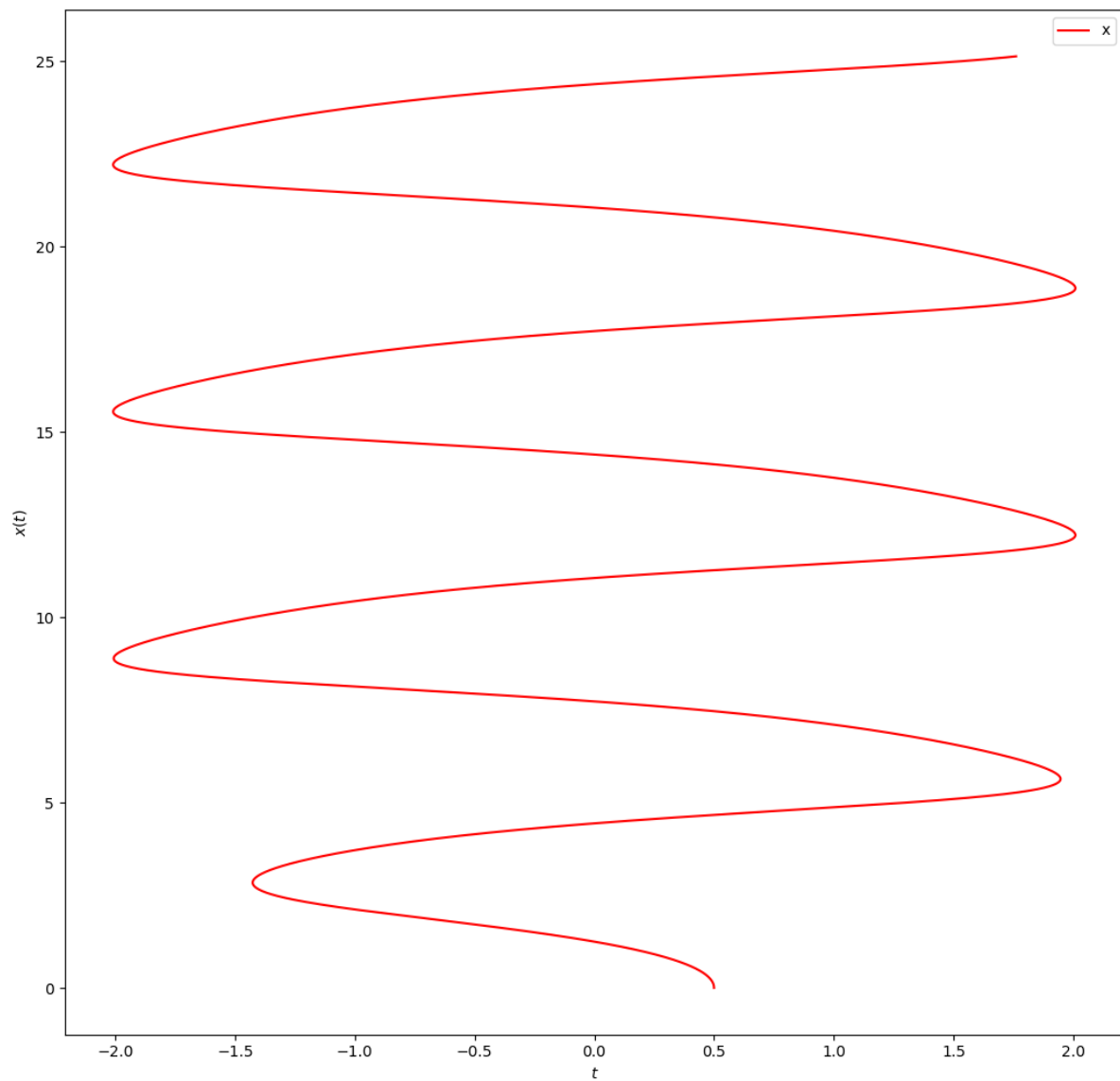
Q7.3(e) gráfico  $v(x)$  vs  $x$



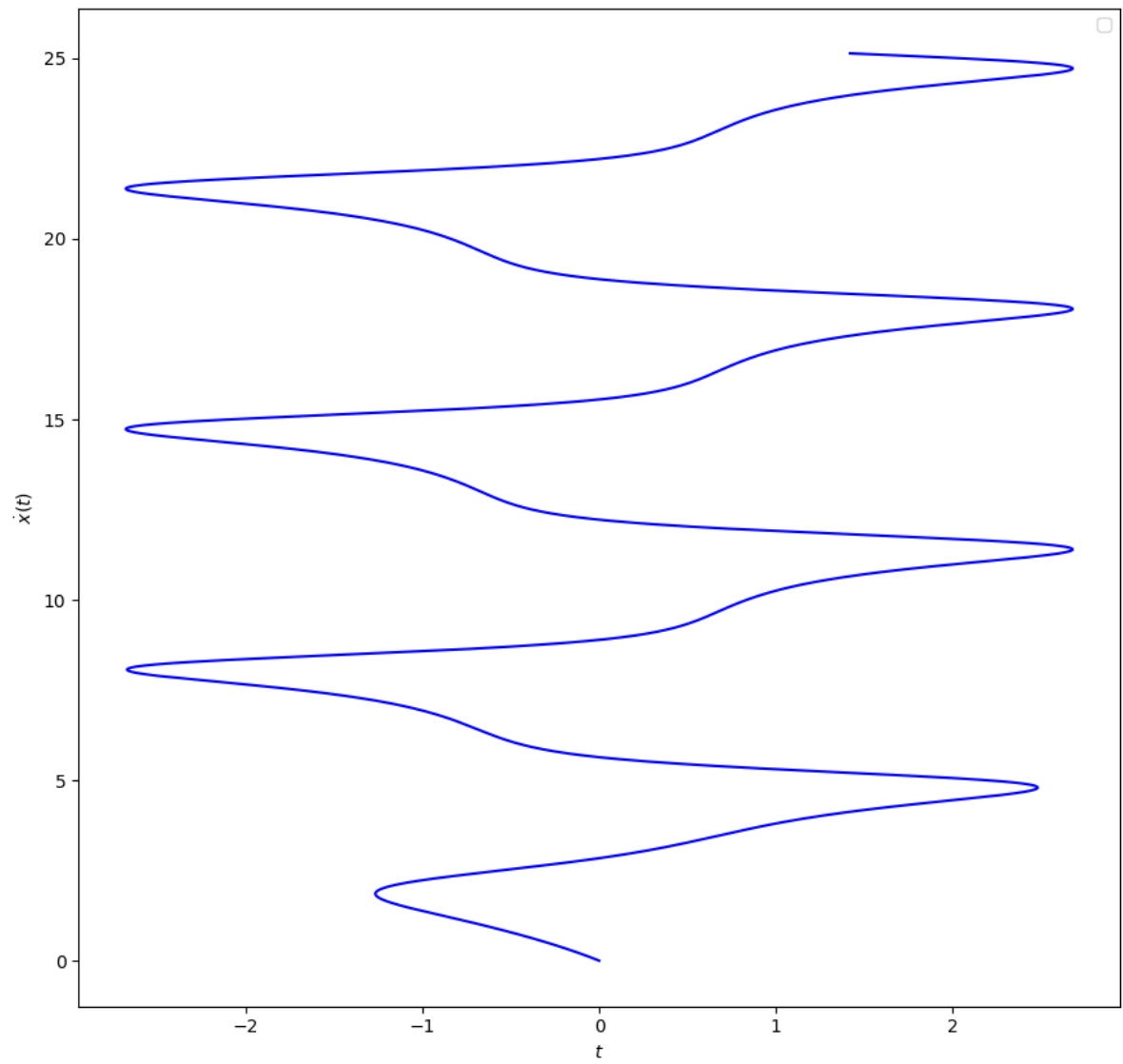
## Questão 7.4

$$\ddot{x}(t) = -x - \epsilon(x^2 - 1)\dot{x}$$

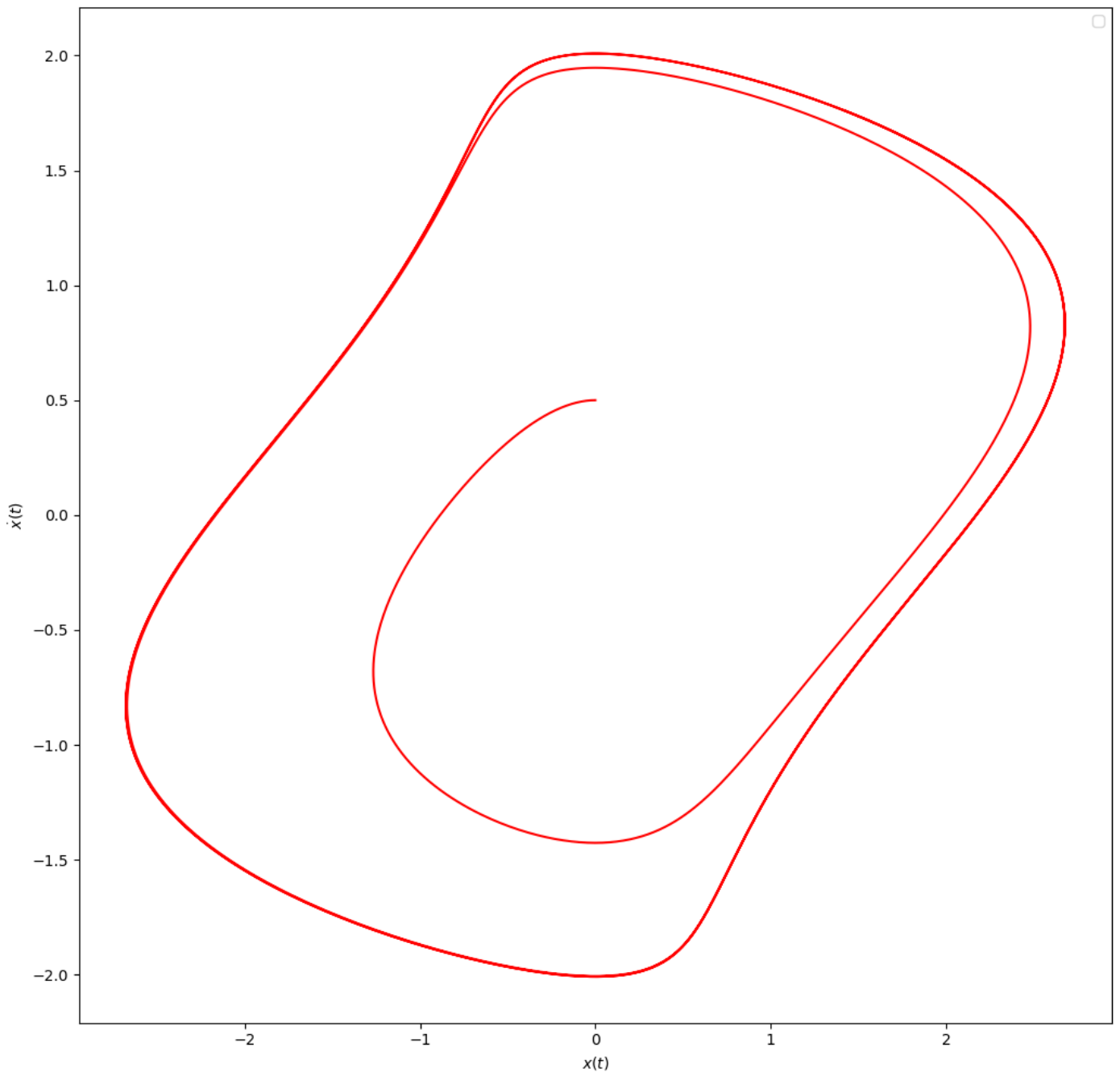
Q7.4(a) gráfico  $x(t)$  vs  $t$



Q7.4(b) gráfico  $\dot{x}(t)$  vs  $t$



Q7.4(c) gráfico  $\dot{x}(t)$  vs  $x$



## Questão 7.5

Q7.5 gráfico  $\theta(t)$  vs  $\nu(t)$

