

> with(plots) :

ΒΟΛΗ ΜΕ ΑΝΤΙΣΤΑΣΗ :

Και οι δύο συνιστώσες της ταχύτητας
μεταβάλλονται .!!!

Έστω : $b=0.30$ (kg/s)

> $DIARKEIA := 13.51937837 :$

> $tmaxYPSOS := 6.531534555 :$

> $BELHNEKES := 785.856849 :$

ΣΥΝΤΕΤΑΓΜΕΝΗ x

$$2357.022603 - 2357.022603 e^{-0.03000000000 t}$$

$$2357.022603 - 2357.022603 e^{-0.03000000000 t}$$

(1)

ΣΥΝΤΕΤΑΓΜΕΝΗ y

$$-13245.91149 e^{-0.03000000000 t} - 326.6666666 t + 13245.91149$$

$$-13245.91149 e^{-0.03000000000 t} - 326.6666666 t + 13245.91149$$

(2)

$$\text{seq}\left(\left\langle 2357.022603 - 2357.022603 e^{-0.03000000000 t}, -13245.91149 e^{-0.03000000000 t} - 326.6666666 t + 13245.91149 \right\rangle, t=0..tmaxYPSOS, \frac{tmaxYPSOS}{3}\right)$$

$$\begin{bmatrix} 0. \\ 0. \end{bmatrix}, \begin{bmatrix} 149.029802 \\ 126.30082 \end{bmatrix}, \begin{bmatrix} 288.636749 \\ 199.64742 \end{bmatrix}, \begin{bmatrix} 419.416629 \\ 223.38798 \end{bmatrix}$$

(3)

$$\text{seq}\left(\left\langle 2357.022603 - 2357.022603 e^{-0.03000000000 t}, -13245.91149 e^{-0.03000000000 t} - 326.6666666 t + 13245.91149 \right\rangle, t=tmaxYPSOS..DIARKEIA, \frac{DIARKEIA-tmaxYPSOS}{3}\right)$$

$$\begin{bmatrix} 419.416629 \\ 223.38798 \end{bmatrix}, \begin{bmatrix} 550.191139 \\ 197.41135 \end{bmatrix}, \begin{bmatrix} 672.139307 \\ 121.83277 \end{bmatrix}, \begin{bmatrix} 785.856849 \\ 0. \end{bmatrix}$$

(4)

> $Plist := [[(3)[1][1], (3)[1][2]], [(3)[2][1], (3)[2][2]], [(3)[3][1], (3)[3][2]], [(3)[4][1], (3)[4][2]], [(4)[1][1], (4)[1][2]], [(4)[2][1], (4)[2][2]], [(4)[3][1], (4)[3][2]], [(4)[4][1], (4)[4][2]]]$:

TAXYTHTA v[x]

$$\begin{aligned} &> 70.71067811 e^{-0.03000000000 t} \\ &\quad 70.71067811 e^{-0.03000000000 t} \end{aligned} \quad (5)$$

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>

TAXYTHTA v[y]

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>

$$\begin{aligned} &> 397.3773446 e^{-0.03000000000 t} - 326.6666666 \\ &\quad 397.3773446 e^{-0.03000000000 t} - 326.6666666 \end{aligned} \quad (6)$$

$$\begin{aligned} &> seq\left(\langle 70.71067811 e^{-0.03000000000 t}, 397.3773446 e^{-0.03000000000 t} - 326.6666666 \rangle, t = 0 \right. \\ &\quad \left. ..tmaxYPSOS, \frac{tmaxYPSOS}{3} \right) \end{aligned}$$

$$\begin{aligned} &\quad \begin{bmatrix} 70.71067811 \\ 70.7106780 \end{bmatrix}, \begin{bmatrix} 66.23978405 \\ 45.5853072 \end{bmatrix}, \begin{bmatrix} 62.05157565 \\ 22.0485631 \end{bmatrix}, \begin{bmatrix} 58.12817924 \\ 0. \end{bmatrix} \end{aligned} \quad (7)$$

$$\begin{aligned} &> seq\left(\langle 70.71067811 e^{-0.03000000000 t}, 397.3773446 e^{-0.03000000000 t} - 326.6666666 \rangle, t \right. \\ &\quad \left. = tmaxYPSOS..DIARKEIA, \frac{DIARKEIA - tmaxYPSOS}{3} \right) \end{aligned}$$

$$\begin{aligned} &\quad \begin{bmatrix} 58.12817924 \\ 0. \end{bmatrix}, \begin{bmatrix} 54.20494394 \\ -22.0476577 \end{bmatrix}, \begin{bmatrix} 50.54649888 \\ -42.6072566 \end{bmatrix}, \begin{bmatrix} 47.13497264 \\ -61.7792300 \end{bmatrix} \end{aligned} \quad (8)$$

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>
>

> AR1 := arrow(⟨(3)[1][1], (3)[1][2]⟩, ⟨(7)[1][1], (7)[1][2]⟩, color = blue, width = 5) :

> AR2 := arrow(⟨(3)[2][1], (3)[2][2]⟩, ⟨(7)[2][1], (7)[2][2]⟩, color = blue, width = 5) :

> AR3 := arrow(⟨(3)[3][1], (3)[3][2]⟩, ⟨(7)[3][1], (7)[3][2]⟩, color = blue, width = 5) :

> AR4 := arrow(⟨(3)[4][1], (3)[4][2]⟩, ⟨(7)[4][1], (7)[4][2]⟩, color = blue, width = 5) :

> AR5 := arrow(⟨(4)[2][1], (4)[2][2]⟩, ⟨(8)[2][1], (8)[2][2]⟩, color = blue, width = 5) :

> AR6 := arrow(⟨(4)[3][1], (4)[3][2]⟩, ⟨(8)[3][1], (8)[3][2]⟩, color = blue, width = 5) :

> AR7 := arrow(⟨(4)[4][1], (4)[4][2]⟩, ⟨(8)[4][1], (8)[4][2]⟩, color = blue, width = 5) :

>

> AR1x := arrow(⟨(3)[1][1], (3)[1][2]⟩, ⟨(7)[1][1], 0⟩, color = cyan, width = 3) :

> AR2x := arrow(⟨(3)[2][1], (3)[2][2]⟩, ⟨(7)[2][1], 0⟩, color = cyan, width = 3) :

> AR3x := arrow(⟨(3)[3][1], (3)[3][2]⟩, ⟨(7)[3][1], 0⟩, color = cyan, width = 3) :

> AR4x := arrow(⟨(3)[4][1], (3)[4][2]⟩, ⟨(7)[4][1], 0⟩, color = cyan, width = 3) :

> AR5x := arrow(⟨(4)[2][1], (4)[2][2]⟩, ⟨(8)[2][1], 0⟩, color = cyan, width = 3) :

> AR6x := arrow(⟨(4)[3][1], (4)[3][2]⟩, ⟨(8)[3][1], 0⟩, color = cyan, width = 3) :

> AR7x := arrow(⟨(4)[4][1], (4)[4][2]⟩, ⟨(8)[4][1], 0⟩, color = cyan, width = 3) :

>

> AR1y := arrow(⟨(3)[1][1], (3)[1][2]⟩, ⟨0, (7)[1][2]⟩, color = red, width = 7) :

> AR2y := arrow(⟨(3)[2][1], (3)[2][2]⟩, ⟨0, (7)[2][2]⟩, color = red, width = 7) :

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> AR3y := arrow(⟨(3)[3][1], (3)[3][2]⟩, ⟨0, (7)[3][2]⟩, color = red, width = 7) :
> AR4y := arrow(⟨(3)[4][1], (3)[4][2]⟩, ⟨0, (7)[4][2]⟩, color = red, width = 7) :
> AR5y := arrow(⟨(4)[2][1], (4)[2][2]⟩, ⟨0, (8)[2][2]⟩, color = red, width = 7) :
> AR6y := arrow(⟨(4)[3][1], (4)[3][2]⟩, ⟨0, (8)[3][2]⟩, color = red, width = 7) :
> AR7y := arrow(⟨(4)[4][1], (4)[4][2]⟩, ⟨0, (8)[4][2]⟩, color = red, width = 7) :
>
> Ppoint := pointplot(Plist, color = blue, symbol = solidcircle, symbolsize = 15) :
> P := plot([2357.022603 - 2357.022603 e-0.030000000000 t, -13245.91149 e-0.030000000000 t
- 326.6666666 t + 13245.91149, t = 0 .. DIARKEIA], linestyle = 1, thickness = 2, color
= blue) :
>
>
> display(AR1, AR2, AR3, AR4, AR5, AR6, AR7, AR1x, AR2x, AR3x, AR4x, AR5x, AR6x, AR7x,
AR1y, AR2y, AR3y, AR4y, AR5y, AR6y, AR7y, Ppoint, P, gridlines, labels = [x, y], title
= "ΒΟΛΗ ΜΕ ΑΝΤΙΣΤΑΣΗ -ΔΙΑΓΡΑΜΜΑ ΤΑΧΥΤΗΤΩΝ\nΣΥΝΙΣΤΩΣΕΣ ΚΑΤΑ x &
y\nΣΑΒΒΑΣ Π. ΓΑΒΡΙΗΛΙΔΗΣ", font = [arial, bold, 14])

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ΒΟΛΗ ΜΕ ΑΝΤΙΣΤΑΣΗ -ΔΙΑΓΡΑΜΜΑ ΤΑΧΥΤΗΤΩΝ
ΣΥΝΙΣΤΩΣΕΣ ΚΑΤΑ x & y
ΣΑΒΒΑΣ Π. ΓΑΒΡΙΗΛΙΔΗΣ

