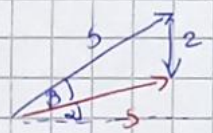
Tarea 1 / Diego Bahamondes / paralelo 21

1) Pregunta 1

A) Versión rápida



$\vec{a} = 5\ [cm]\ \angle 45°$
$\vec{b} = 2\ [cm]\ \angle -90°$
$\vec{S} = 5\ [cm]\ \angle \alpha$

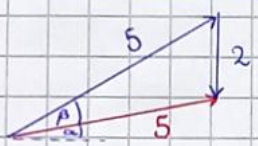
$$S^2 = 5^2 + 2^2 - 2 \cdot 5 \cdot 2 \cdot \cos(45°)$$
$$S = 3,85\ [cm]$$

$$\frac{\text{sen}\,\beta}{2} = \frac{\text{sen}\,45°}{3,85} \Rightarrow \text{sen}\,\beta = \frac{2 \cdot \text{sen}\,45°}{3,85}$$

$$\Rightarrow \beta = 21,55°$$
$$\alpha + \beta = 45°$$
$$\alpha = 23,45°$$

$\vec{S} = 3,85\ [cm]\ \angle 23,45°$

b) Versión de calidad



$\vec{a} = 5\ [cm]\ \angle 45°$
$\vec{b} = 2\ [cm]\ \angle -90°$
$\vec{S} = 5\ [cm]\ \angle \alpha$

$$S^2 = 5^2 + 2^2 - 2 \cdot 5 \cdot 2 \cdot \cos(45°)$$
$$S = 3,85\ [cm]$$

$$\frac{\text{Sen}\,\beta}{2} = \frac{\text{sen}(45°)}{3,85} \Rightarrow \text{Sen}\,\beta = \frac{2 \cdot \text{sen}(45°)}{3,85}$$

$$\Rightarrow \beta = 21,55°$$
$$\alpha + \beta = 45°$$
$$\alpha = 23,45°$$

$\vec{S} = 3,85\ [cm]\ \angle 23,45°$

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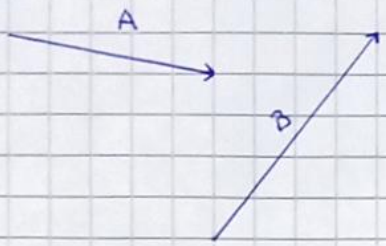
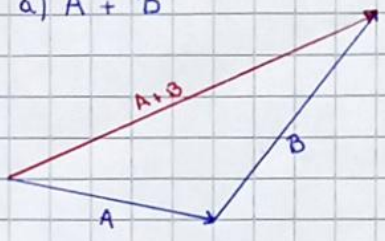
· Pregunta 3

Cuestionario respondido en aula

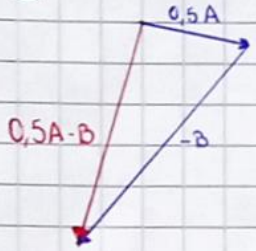
· Pregunta 4



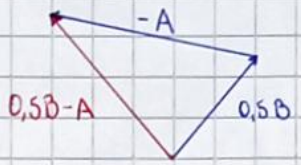
a) A + B



b) 0,5A - B



c) 0,5B - A

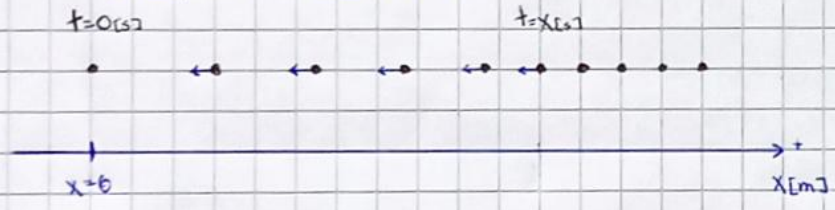


· Pregunta 5

A)

Diagrama de velocidad

Diagrama de aceleración



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· Pregunta 5 (continuación)

A)

Gráfico de velocidad

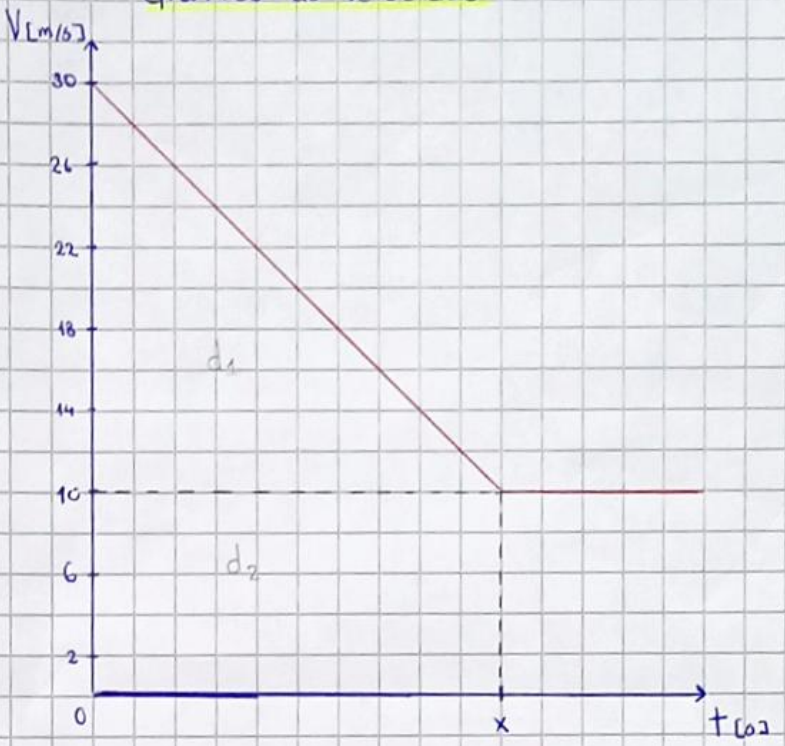
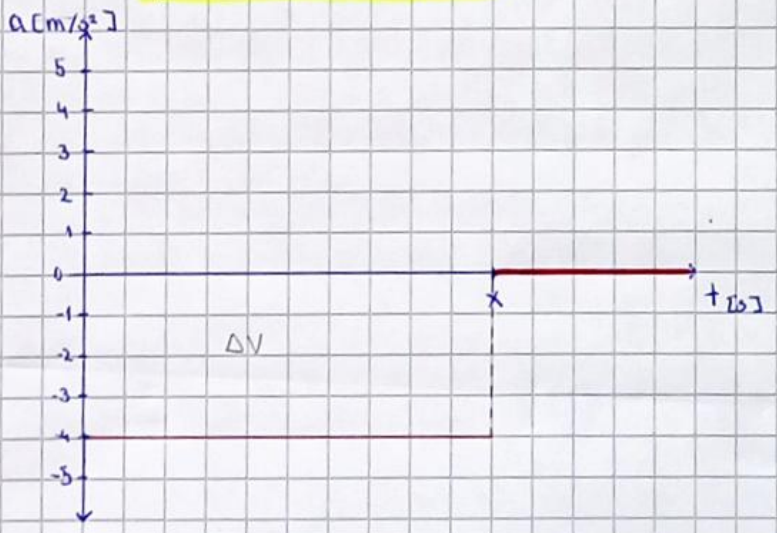


Gráfico de aceleración



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- Pregunta 5 (continuación)

b) $\Delta V = (10 - 30)\,[m/s] \Rightarrow \Delta V = -20\,[m/s] \Rightarrow$

$-20\,[m/s] = -4\,[m/s^2] \cdot x \Rightarrow {}^{-20\,[m/s]}/_{-4\,[m/s^2]} = x$

$5\,[s] = x \rightarrow$ Frena durante $5\,[s]$

$$d_1 = \frac{(30 - 20)\,[m/s] \cdot 5\,[s]}{2} \Rightarrow d_1 = \frac{100\,[m]}{2} \Rightarrow d_1 = 50\,[m]$$

$d_2 = 10\,[m/s] \cdot 5\,[s] \Rightarrow d_2 = 50\,[m]$

$d_{Total} = 50\,[m] + 50\,[m] = 100\,[m]$

Recorre $100\,[m]$ mientras está frenando