

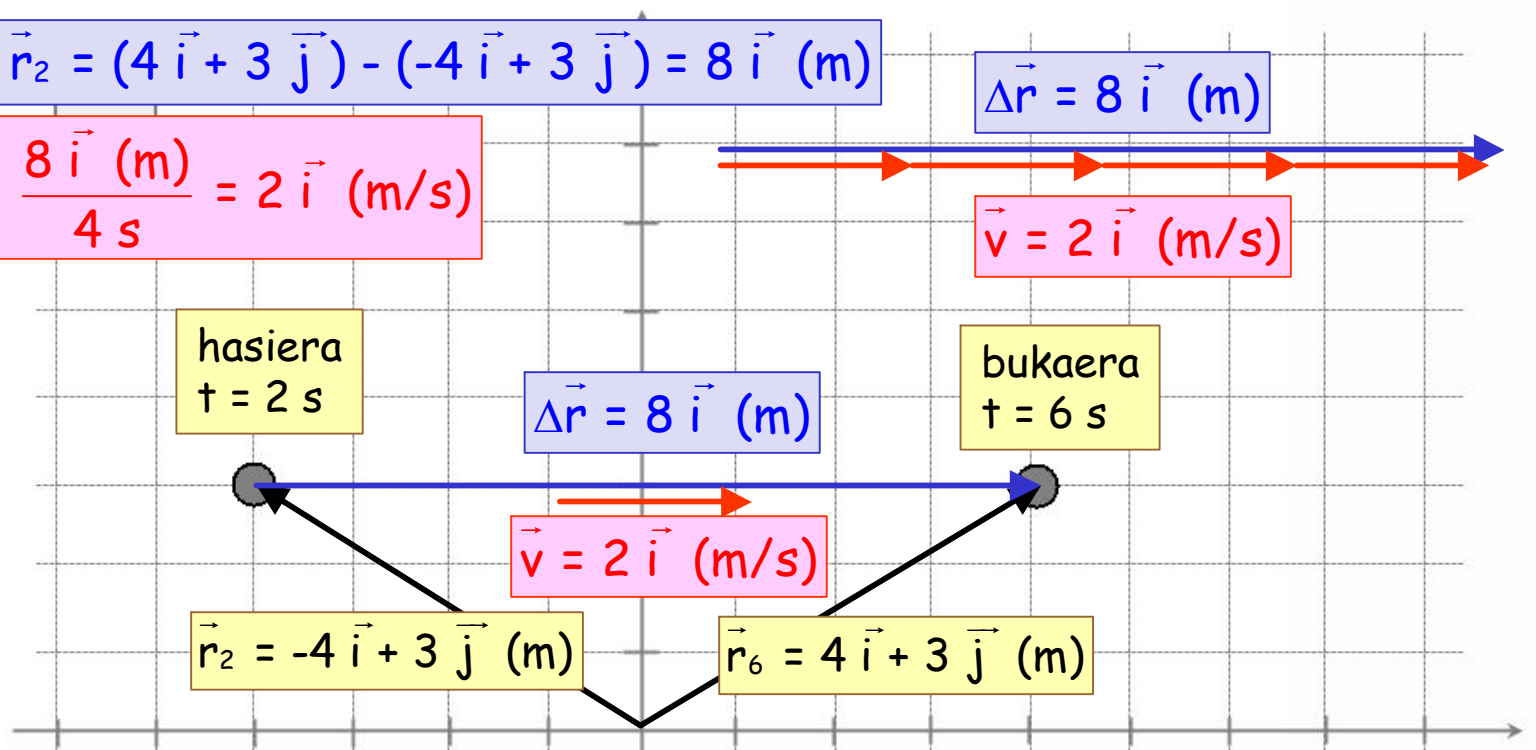
Zinematika

$$\Delta \vec{r} = \vec{r}_6 - \vec{r}_2 = (4 \vec{i} + 3 \vec{j}) - (-4 \vec{i} + 3 \vec{j}) = 8 \vec{i} \text{ (m)}$$

$$\vec{v} = \frac{\Delta \vec{r}}{t} = \frac{8 \vec{i} \text{ (m)}}{4 \text{ s}} = 2 \vec{i} \text{ (m/s)}$$

$$\Delta \vec{r} = 8 \vec{i} \text{ (m)}$$

$$\vec{v} = 2 \vec{i} \text{ (m/s)}$$



hasiera
t = 2 s

bukaera
t = 6 s

$$\Delta \vec{r} = 8 \vec{i} \text{ (m)}$$

$$\vec{v} = 2 \vec{i} \text{ (m/s)}$$

$$\vec{r}_2 = -4 \vec{i} + 3 \vec{j} \text{ (m)}$$

$$\vec{r}_6 = 4 \vec{i} + 3 \vec{j} \text{ (m)}$$

$$\vec{r} = (x_0 + 2 t) \vec{i} + y_0 \vec{j} \text{ (m)}$$

$$\begin{aligned} -4 &= x_0 + 4 \rightarrow x_0 = -8 \text{ (m)} \\ 3 &= y_0 \rightarrow y_0 = 3 \text{ (m)} \end{aligned}$$

Kasua:
t = 2 s denean

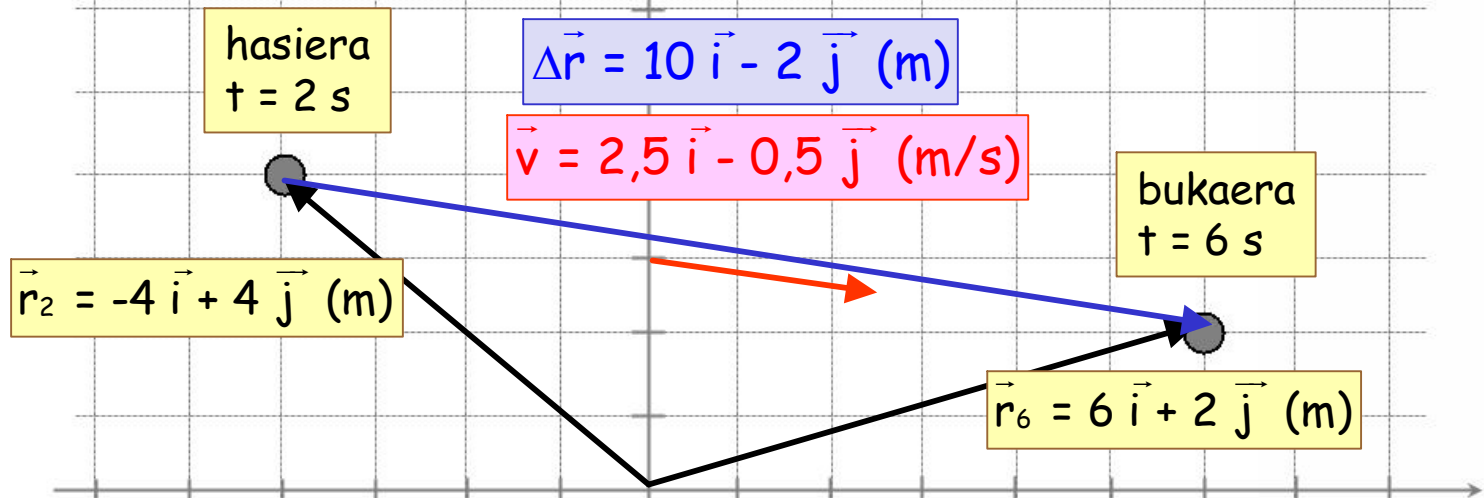
$$\vec{r}_2 = -4 \vec{i} + 3 \vec{j} = (x_0 + 4) \vec{i} + y_0 \vec{j} \text{ (m)}$$

$$\vec{r} = (-8 + 2 t) \vec{i} + 3 \vec{j} \text{ (m)}$$

Zinematika

$$\Delta \vec{r} = \vec{r}_6 - \vec{r}_2 = (6 \vec{i} + 2 \vec{j}) - (-4 \vec{i} + 4 \vec{j}) = 10 \vec{i} - 2 \vec{j} \text{ (m)}$$

$$\vec{v} = \frac{\Delta \vec{r}}{t} = \frac{10 \vec{i} - 2 \vec{j}}{4 \text{ s}} = 2,5 \vec{i} - 0,5 \vec{j} \text{ (m/s)}$$



$$\vec{r} = (x_0 + 2,5 t) \vec{i} + (y_0 - 0,5 t) \vec{j} \text{ (m)}$$

Kasua:
 $t = 2 \text{ s}$ denean

$$\vec{r}_2 = -4 \vec{i} + 4 \vec{j} = (x_0 + 5) \vec{i} + (y_0 - 1) \vec{j} \text{ (m)}$$

$$\begin{aligned} -4 &= x_0 + 5 \rightarrow x_0 = -9 \text{ (m)} \\ 4 &= y_0 - 1 \rightarrow y_0 = 5 \text{ (m)} \end{aligned}$$

$$\vec{r} = (-9 + 2,5 t) \vec{i} + (5 - 0,5 t) \vec{j} \text{ (m)}$$

Zinematika

$$\Delta \vec{r} = \vec{r}_5 - \vec{r}_1 = (4 \vec{i} - 2 \vec{j}) - (4 \vec{i} + 7 \vec{j}) = -9 \vec{j} \text{ (m)}$$

$$\vec{v} = \frac{\Delta \vec{r}}{t} = \frac{-9 \vec{j}}{4 \text{ s}} = -2,25 \vec{j} \text{ (m/s)}$$

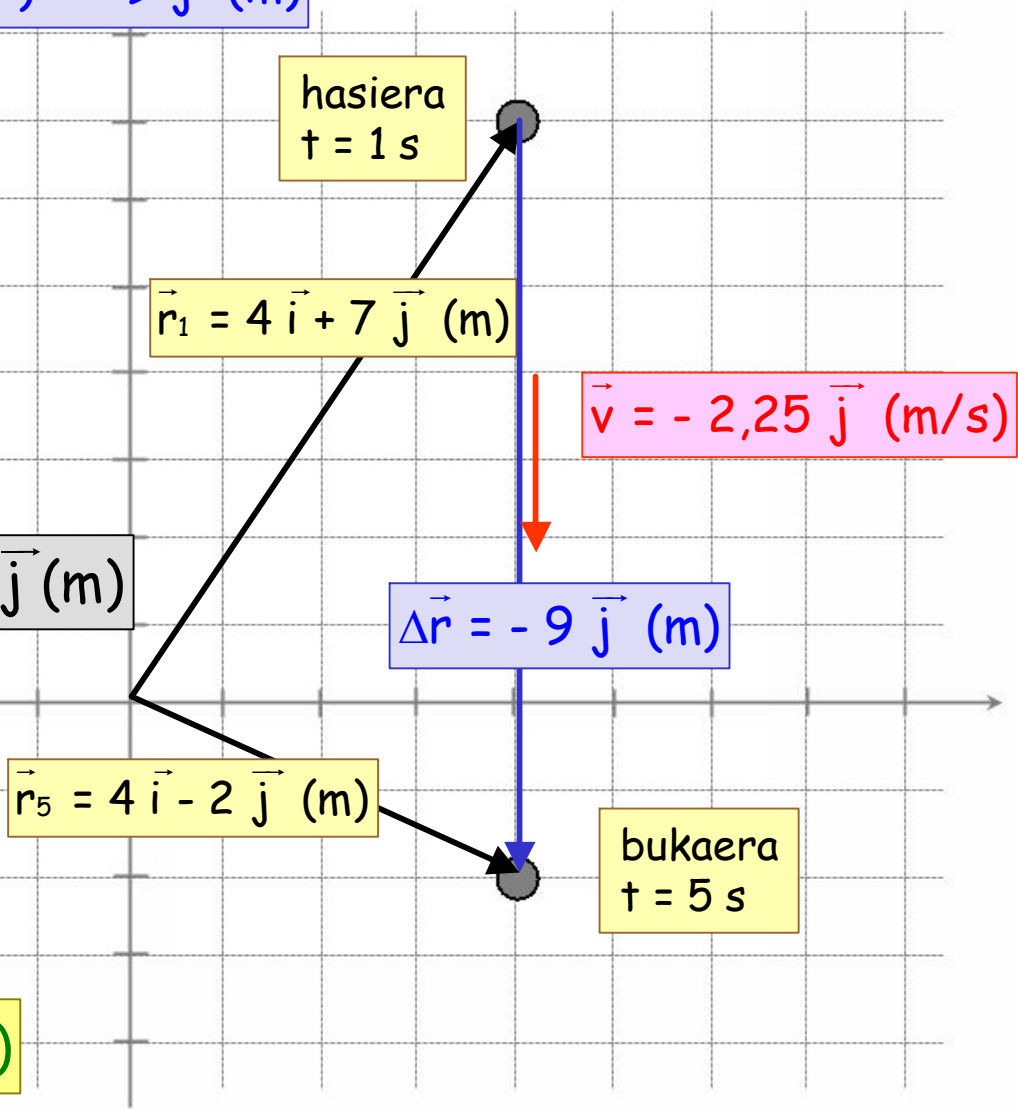
$$\vec{r} = x_0 \vec{i} + (y_0 - 2,25 t) \vec{j} \text{ (m)}$$

Kasua:
t = 1 s denean

$$\vec{r}_1 = 4 \vec{i} + 7 \vec{j} = x_0 \vec{i} + (y_0 - 2,25) \vec{j} \text{ (m)}$$

$$4 \text{ (m)} = x_0$$
$$7 = y_0 - 2,25 \rightarrow y_0 = 9,25 \text{ (m)}$$

$$\vec{r} = 4 \vec{i} + (9,25 - 2,25 t) \vec{j} \text{ (m)}$$



hasiera
t = 1 s

$$\vec{r}_1 = 4 \vec{i} + 7 \vec{j} \text{ (m)}$$

$$\vec{v} = -2,25 \vec{j} \text{ (m/s)}$$

$$\Delta \vec{r} = -9 \vec{j} \text{ (m)}$$

$$\vec{r}_5 = 4 \vec{i} - 2 \vec{j} \text{ (m)}$$

bukaera
t = 5 s

Zinematika

$$\Delta \vec{r} = \vec{r}_4 - \vec{r}_2 = (5 \vec{i} + 6 \vec{j}) - (-4 \vec{j}) = 5 \vec{i} + 10 \vec{j} \text{ (m)}$$

$$\vec{v} = \frac{\Delta \vec{r}}{t} = \frac{5 \vec{i} + 10 \vec{j} \text{ (m)}}{2 \text{ s}} = 2,5 \vec{i} + 5 \vec{j} \text{ (m/s)}$$

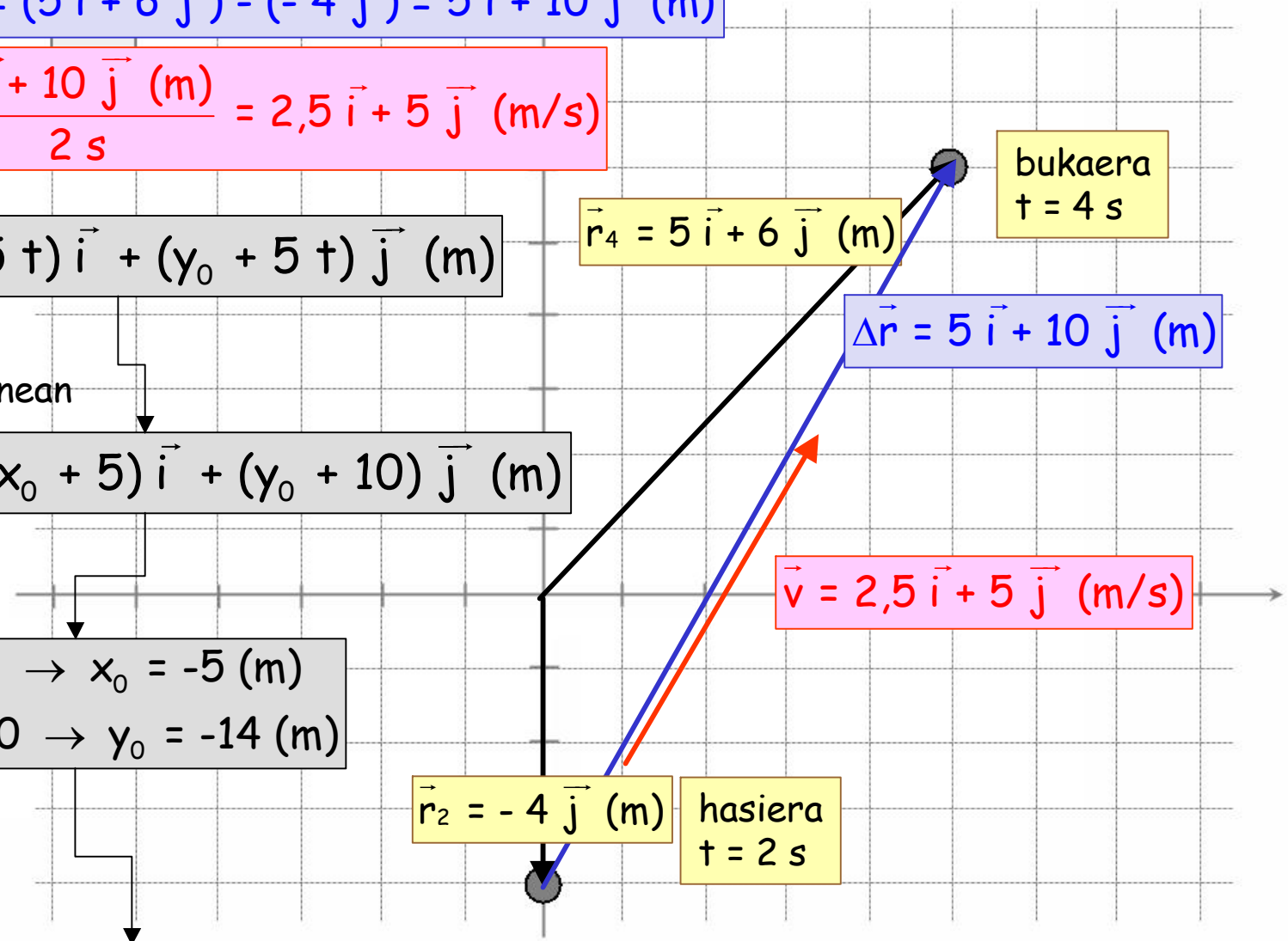
$$\vec{r} = (x_0 + 2,5 t) \vec{i} + (y_0 + 5 t) \vec{j} \text{ (m)}$$

Kasua:
t = 2 s denean

$$\vec{r}_2 = -4 \vec{j} = (x_0 + 5) \vec{i} + (y_0 + 10) \vec{j} \text{ (m)}$$

$$\begin{aligned} 0 &= x_0 + 5 \rightarrow x_0 = -5 \text{ (m)} \\ -4 &= y_0 + 10 \rightarrow y_0 = -14 \text{ (m)} \end{aligned}$$

$$\vec{r} = (-5 + 2,5 t) \vec{i} + (-14 + 5 t) \vec{j} \text{ (m)}$$



Zinematika

$$\Delta \vec{r} = \vec{r}_5 - \vec{r}_2 = -\vec{i} - (5\vec{i}) = -6\vec{i} \text{ (m)}$$

$$\vec{v} = \frac{\Delta \vec{r}}{t} = \frac{-6\vec{i} \text{ (m)}}{3 \text{ s}} = -2\vec{i} \text{ (m/s)}$$

$$\vec{r} = (x_0 - 2t)\vec{i} + y_0\vec{j} \text{ (m)}$$

Kasua:
 $t = 2 \text{ s}$ denean

$$\vec{r}_2 = 5\vec{i} = (x_0 - 4)\vec{i} + y_0\vec{j} \text{ (m)}$$

$$5 = x_0 - 4 \rightarrow x_0 = 9 \text{ (m)}$$

$$0 = y_0$$

$$\vec{r}_5 = -\vec{i} \text{ (m)}$$

$$\vec{v} = -2\vec{i} \text{ (m/s)}$$

$$\vec{r}_2 = 5\vec{i} \text{ (m)}$$

bukaera
 $t = 5 \text{ s}$

hasiera
 $t = 2 \text{ s}$

$$\Delta \vec{r} = -6\vec{i} \text{ (m)}$$

$$\vec{r} = (9 - 2t)\vec{i} \text{ (m)}$$

