

$$\vec{PC} \perp \vec{AB} \Leftrightarrow \vec{AB} \cdot \vec{PC} = (-2)(2-2t) + (-3)(-6-3t) + (-1)(-t) = 0$$

$$\Leftrightarrow 14t + 14 = 0 \quad \Leftrightarrow t = -1$$

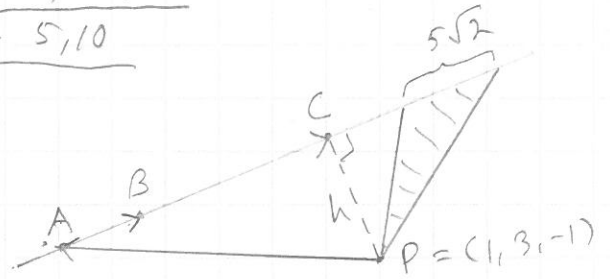
$$\Rightarrow \vec{PC} = (2 - 2 \cdot (-1))\hat{i} + (-6 - 3 \cdot (-1))\hat{j} - (-1)\hat{k}$$

$$= 4\hat{i} - 3\hat{j} + \hat{k}$$

$$a) \quad C = (-1 + 4, 2 - 3, 3 + 1) = (3, -1, 4)$$

$$b) \quad |\vec{PC}| = \sqrt{4^2 + (-3)^2 + 1^2} = \sqrt{26} \approx 5,10$$

$$10.6 \quad \begin{cases} x = 2 - t \\ y = 3 - t \\ z = 1 - t \end{cases} \quad t \in \mathbb{R}$$



$$\begin{cases} t=0: A = (2, 3, 1) \\ t=1: B = (1, 2, 0) \end{cases} \quad \text{2 moran pistello}$$

$$\vec{PC} = \vec{PA} + \vec{AC} = \vec{PA} + t\vec{AB} = (\hat{i} + 2\hat{j}) + t(-\hat{i} - \hat{j} - \hat{k})$$

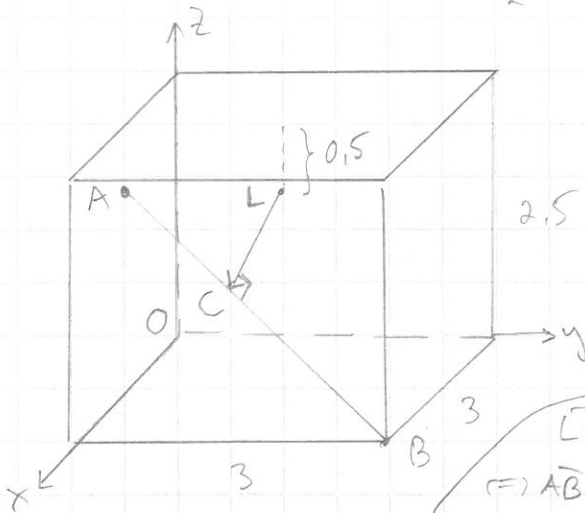
$$= (1-t)\hat{i} - t\hat{j} + (2-t)\hat{k} \quad \leftarrow \text{ris.}$$

$$\vec{PC} \perp \vec{AB} \Leftrightarrow \vec{AB} \cdot \vec{PC} = (-1)(1-t) - 1 \cdot (-t) - 1 \cdot (2-t) = 0 \quad \Leftrightarrow 3t - 3 = 0 \quad \Leftrightarrow t = 1$$

$$h = |\vec{PC}| = \sqrt{0^2 + (-1)^2 + 1^2} = \sqrt{2}$$

$$\text{Punto-ale: } A = \frac{1}{2} \cdot 5\sqrt{2} \cdot \sqrt{2} = \underline{5}$$

10.8



$$A = (1,5; 0; 2)$$

$$B = (3, 3, 0)$$

$$L = (1,5; 1,5; 2)$$

$$\vec{LC} = \vec{LA} + \vec{AC} = \vec{LA} + t\vec{AB}$$

$$= -1,5\hat{j} + t(1,5\hat{i} + 3\hat{j} - 2\hat{k})$$

$$= 1,5t\hat{i} + (-1,5 + 3t)\hat{j} - 2t\hat{k}$$

$$\vec{LC} \perp \vec{AB}$$

$$\Leftrightarrow \vec{AB} \cdot \vec{LC} = 1,5 \cdot 1,5t + 3 \cdot (-1,5 + 3t) - 2 \cdot (-2t) = 0$$

$$\Leftrightarrow t = \frac{18}{61}$$

$$|\vec{LC}| = \sqrt{\left(1,5 \cdot \frac{18}{61}\right)^2 + \left(-1,5 + 3 \cdot \frac{18}{61}\right)^2 + \left(-2 \cdot \frac{18}{61}\right)^2} = \frac{15\sqrt{61}}{122} \approx \underline{0,96 \text{ (m)}}$$

$$10.13 \quad \begin{cases} x = 100 + 50t \\ y = 50 + 2t \\ z = 16t \end{cases} \quad t \in \mathbb{R}$$

$$P = (1700, 1450, 0)$$

Resto moran pistello

$$t=0: A = (100, 50, 0)$$

$$t=1: B = (150, 52, 16)$$

$$\vec{PC} = \vec{PA} + \vec{AC} = \vec{PA} + t\vec{AB} = (-1600\hat{i} - 1400\hat{j}) + t(50\hat{i} + 2\hat{j} + 16\hat{k})$$

