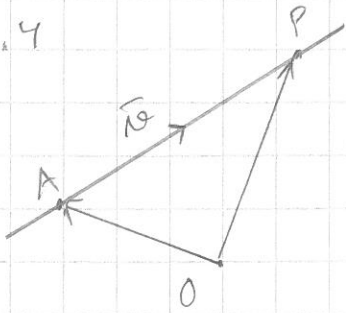


$$\Rightarrow \begin{cases} x = \dots \\ y = \dots \\ z = \dots \end{cases} \quad \text{muoran parametriseityy} \\ \text{parametri } t \in \mathbb{R}$$

$$\vec{OP} = \vec{OA} + \vec{AP} = \vec{OA} + t\vec{AB} \quad \text{muoran rektoriyhtol\u00f6}$$

6.4



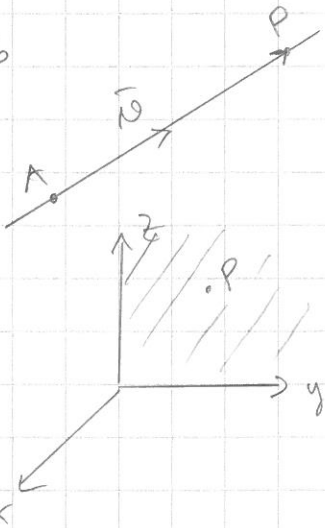
$$A = (6, -1, 0), \quad \vec{AB} = -2\vec{i} + \vec{j} + 3\vec{k}$$

$$\begin{aligned} \text{a) } \vec{OP} &= \vec{OA} + \vec{AP} = \vec{OA} + t\vec{AB} \\ &= (6\vec{i} - \vec{j}) + t(-2\vec{i} + \vec{j} + 3\vec{k}), \quad t \in \mathbb{R} \\ &= \underline{(6 - 2t)\vec{i} + (-1 + t)\vec{j} + 3t\vec{k}} \quad t \in \mathbb{R} \end{aligned}$$

$$\text{b) } t=1: \vec{OP} = 4\vec{i} + 3\vec{k} \Rightarrow P = (4, 0, 3)$$

$$t=2: \vec{OP} = 2\vec{i} + \vec{j} + 6\vec{k} \Rightarrow \underline{P = (2, 1, 6)}$$

6.6



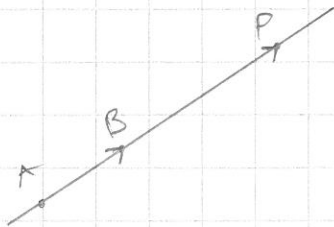
$$A = (6, 0, 8), \quad \vec{AB} = \vec{i} + 3\vec{j} - 4\vec{k}$$

$$\begin{aligned} P \text{ suoralla} &\Leftrightarrow \vec{AP} \parallel \vec{AB} \Leftrightarrow \vec{AP} = t\vec{AB} = t\vec{i} + 3t\vec{j} - 4t\vec{k} \\ &\Rightarrow P = (6 + t, 0 + 3t, 8 - 4t) \end{aligned}$$

$$P \text{ on } yz\text{-tasolla} \Leftrightarrow x = 6 + t = 0 \Leftrightarrow t = -6$$

$$\Rightarrow P = (6 - 6, 0 + 3 \cdot (-6), 8 - 4 \cdot (-6)) = \underline{(0, -18, 32)}$$

$$6.12 \quad A = (6, 0, 8), \quad B = (3, 5, 6)$$



$$P \text{ suoralla} \Leftrightarrow \vec{AP} \parallel \vec{AB} \Leftrightarrow \vec{AP} = t\vec{AB}$$

$$\begin{aligned} &= t(-3\vec{i} + 5\vec{j} - 2\vec{k}) \\ &= -3t\vec{i} + 5t\vec{j} - 2t\vec{k} \end{aligned}$$

$$\Rightarrow P = (6 - 3t, 0 + 5t, 8 - 2t)$$

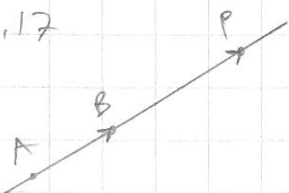
$$\text{a) } P \text{ on } yz\text{-tasolla} \Leftrightarrow x = 6 - 3t = 0 \Leftrightarrow t = 2$$

$$\Rightarrow P = (6 - 3 \cdot 2, 0 + 5 \cdot 2, 8 - 2 \cdot 2) = \underline{(0, 10, 4)}$$

$$\text{b) } P \text{ on } xy\text{-tasolla} \Leftrightarrow z = 8 - 2t = 0 \Leftrightarrow t = 4$$

$$\Rightarrow P = (6 - 3 \cdot 4, 0 + 5 \cdot 4, 8 - 2 \cdot 4) = \underline{(-6, 20, 0)}$$

6.17



$$A = (5, 5, 0), \quad B = (2, 3, 6)$$

$$\begin{aligned} P \text{ suoralla} &\Leftrightarrow \vec{AP} \parallel \vec{AB} \Leftrightarrow \vec{AP} = t\vec{AB} = t(-3\vec{i} - 2\vec{j} + 6\vec{k}) \\ &= -3t\vec{i} - 2t\vec{j} + 6t\vec{k} \end{aligned}$$

$$\Rightarrow P = (5 - 3t, 5 - 2t, 0 + 6t)$$