

3 P68

$$\begin{aligned}\vec{p} &= \vec{a} + t\vec{b} \\ &= (1, 3, -2) + t(1, -2, 0) \\ &= (t+1, -2t+3, -2)\end{aligned}$$

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$$\vec{b} \perp \vec{p} \text{ 故に } \vec{b} \cdot \vec{p} = 0$$

$$\begin{aligned}\vec{b} \cdot \vec{p} &= (1, -2, 0) \cdot (t+1, -2t+3, -2) = 0 \\ &= t+1 - 2(-2t+3) = 0 \\ &= 5t - 5 = 0\end{aligned}$$

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$$\therefore t = 1$$

$$t=1 \text{ のとき}$$

$$\begin{aligned}\vec{p} &= (t+1, -2t+3, -2) \\ &= (2, 1, -2)\end{aligned}$$

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$$\begin{aligned}|\vec{p}| &= \sqrt{2^2 + 1^2 + (-2)^2} \\ &= \sqrt{9} \\ &= 3\end{aligned}$$

$$\therefore |\vec{p}| = 3$$

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