(49) $P(5,-1,6)$

$r=\begin{cases} x=1-2t \\ y=-t \\ z=5+t \end{cases}$ $\quad d(P,r)=\dfrac{|\overline{PP_r}\times\overline{v_r}|}{|\overline{v_r}|}$

$P_r=(1,0,5)$

$\overline{v_r}=(-2,-1,1)$

$\overline{PP_r}=(1,0,5)-(5,-1,6)=(-4,1,-1)$

$\overline{PP_r}\times\overline{v_r}=\begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ -4 & 1 & -1 \\ -2 & -1 & 1 \end{vmatrix}=(0,6,6)$

$|\overline{PP_r}\times\overline{v_r}|=$

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(55) $r=\begin{cases} x-y=-3 \\ x+z=1 \end{cases}$ $\quad x=\alpha,\ y=-3+\alpha,\ z=1-\alpha$

$\pi: x+y-2z=1$

a) $\begin{cases} x-y=-3 \\ x+z=1 \\ x+y-2z=1 \end{cases} \Rightarrow S(0,3,1)$

d) $d(P,S)$

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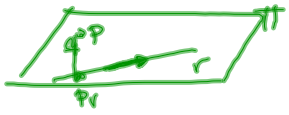
(57) $Q(2,-1,0)$

$P_r=(3,2,4)$

P

$r=\begin{cases} x=3-2t \\ y=2+3t \\ z=4 \end{cases}$



$\pi\begin{cases} P=(2,0,4) \\ \vec{v}_1=\overline{v_r}=(-2,3,0) \\ \vec{v}_2=\overline{P_rP}=(2,0,4)-(3,2,4)=(-1,-2,0) \end{cases}$

$\begin{vmatrix} x-2 & y & z-4 \\ -2 & 3 & 0 \\ -1 & -2 & 0 \end{vmatrix}=0 \quad z-4=0$

$d(Q,\pi)=d((2,-1,0),z-4=0)=$

$\dfrac{|0-4|}{\sqrt{0^2+0^2+1^2}}=4u$

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(53) $\pi_1: x-5y+2z-19=0$

$\pi_2=2x-10y+4z=0$

$\dfrac{1}{2}=\dfrac{-5}{-10}=\dfrac{2}{4}\neq\dfrac{-19}{0}$

$\pi_1: x-5y+2z-19=0$

$\pi_2=x-5y+2z=0$

$d(\pi_1,\pi_2)=\dfrac{|D_1-D_2|}{\sqrt{A^2+B^2+C^2}}=\dfrac{|-19-0|}{\sqrt{1+25+4}}$

$\dfrac{19}{\sqrt{29}}u$

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