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Matrícula: 014

1) $S: \begin{cases} \frac{x-2}{2} = \frac{z-4}{5} \\ y = 3 \end{cases}$, $A(0,1,4)$

$P_1 = (2,3,4)$
$P_2 = (0,3,-1)$

$\overrightarrow{AP_1} = (2,2,0)$
$\overrightarrow{P_1P_2} = (2,0,5) = \vec{n_S}$

$$\begin{cases} x = 0 + t(0-0) + s(2-0) \\ y = 1 + t(1-3) + s(3-3) \\ z = 4 + t(4-4) + s(4+1) \end{cases} \Rightarrow \begin{cases} x = 2s \\ y = 1 - 2t \\ z = 4 + 5s \end{cases} \Rightarrow$$

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

$x = 0$

reta de $\pi_1 \cap \pi_2 = \begin{cases} z = y - 1 \\ x = 0 \end{cases}$

b) $\vec{v}_{\pi_1 \cap \pi_2} = (0,1,1)$
$\vec{n}_{\pi_3} = (0,1,4)$, $\pi_3: y + 4z - 2 = 0$

$$\beta: \begin{cases} x = 0 + 0t + 0s \\ y = 1 + 1t + 1s \\ z = 0 + 1t + 4s \end{cases} \Rightarrow \beta: \begin{cases} x = 0 \\ y = 1 + t + s \\ z = t + 4s \end{cases}$$

eq geral do 1): $a = \begin{vmatrix} (3-3) & (4+1) \\ (1-3) & (4-4) \end{vmatrix} = +10$

$b = \begin{vmatrix} (2-0) & (4+1) \\ (0-0) & (4-4) \end{vmatrix} = 0$; $c = \begin{vmatrix} 2-0 & 3-3 \\ 0-0 & 1-3 \end{vmatrix} = -4$; $d = 0a - 3b - c$

$\beta: 10x + 0y + (-4)z + 0 - 3(0) - (-4) = 0$

$\beta: 10x - 4z = 4$

spiral