6_a) $A=(4,3,-2)$ $B=(5,5,-1)$ $C=(6,4,-3)$ $D=(7,6,0)$

$\vec{AB} \times \vec{AC}$: $\begin{vmatrix} x-4 & y-3 & z+2 \\ 1 & 2 & 1 \\ 2 & 1 & -1 \end{vmatrix} = 0$

$\vec{AB} \times \vec{AC}$: $-2x+8+2y-6+z+2-4z-8-x+4+y-3=0$

$-3x+3y-3z-3=0$

$-x+y-z-1=0$

$\vec{n}=(-1,1,-1)$

$$d(D,\pi)=\frac{|\langle(-1,1,-1)(7,6,0)\rangle-1|}{\sqrt{(-1)^2+1^2+(-1)^2}}$$

$$=\frac{|-7+6-1|}{\sqrt{3}}$$

$$=\frac{2}{\sqrt{3}} \text{ m} \rightarrow \text{altura}$$

b) $\vec{AD} = (3,3,2)$ $\vec{BC} = (1,-1,-2)$ $\vec{CD} = (1,2,3)$

$$d = \frac{|\langle (1,2,3).(3,3,2) \times (1,-1,-2) \rangle|}{\|(3,3,2)(1,-1,-2)\|}$$

$$d = \frac{|\langle (1,2,3)(-4,8,-6) \rangle|}{\|(-4,8,-6)\|}$$

$$d = \frac{|-4+16-18|}{\sqrt{16+64+36}}$$

$$d = \frac{6}{\sqrt{116}}$$

$$d = \frac{6}{2\sqrt{29}}$$

$$d = \frac{3}{\sqrt{29}}\ u$$

$$\vec{AD} \times \vec{BC} = \begin{vmatrix} i & j & k & i & j \\ 3 & 3 & 2 & 3 & 3 \\ 1 & -1 & -2 & 1 & -1 \end{vmatrix}$$

$$= -6i + 2j - 3k - 3k + 2i + 6j$$

$$= -4i + 8j - 6k$$

$$\vec{AD} \times \vec{BC} = (-4,8,-6)$$