02- $v=(1,-1,2)$, $v=(1,2,1)$ e $w=(-1,-1,2)$

a- $A=\frac{1}{2}\|v\times w\|$

i	j	k	i	j
1	2	1	1	2
-1	-1	2	-1	-1

$4i-j-k+2k+i-2j = 5i-3j+k = (5,-3,1)$

$A=\frac{1}{2}|v\times w| = \frac{1}{2}\sqrt{25+9+1} \Rightarrow \underline{A=\frac{1}{2}\sqrt{35}}$

b-

1	-1	2	1	-1	
1	2	1	1	2	
-1	-1	2	-1	-1	

$-4 \quad -1 \quad -2 \quad 4 \quad 1 \quad -2$

$-4 \qquad 3 = -4$

$|u\times v|.w = |-4| = 4$

03-

$(x+2)^2+(y+1)^2+(z-1)^2=9 \Rightarrow C=(-2,-1,1)$

$A=(4,-2,2)$

$\vec{AC}=(-2-4,-1-2,1-2) \Rightarrow \vec{AC}=(-6,-3,-1)$

$$r=\begin{cases} x=4-6t \\ y=-2-3t \\ z=2-2t \end{cases} \Rightarrow \begin{cases} t=1 \\ t=\frac{1}{3} \\ t=-\frac{1}{2} \end{cases}$$

$-2=4-6t$	$-1=-2-3t$	$1=2-2t$
$-6t=-2-4 \cdot(-1)$	$-3t=-2+1 \cdot(-1)$	$-2t=2-1 \cdot(-1)$
$6t=2+4$	$3t=2-1$	$2t=-2+1$
$6t=6$	$3t=1$	$2t=-1$
$t=1$	$t=\frac{1}{3}$	$t=\frac{-1}{2}$

C não pertence a r.

04.

a- α e β são concorrentes

b- $\alpha: 2x+y+2z=5 \quad \beta: 2x-y+z=-5$

$$\begin{cases} 2x+y+2z=5 \\ 2x-y+z=-5 \end{cases}$$

$4x+3z \Rightarrow x=4+3z$

$2.4+3z+y+2z=5$

$8+3z+y+2z=5$

$y=5-8-5z$

$y=-5z-3$

$$r: \begin{cases} x=4+3t \\ y=-3-5t \\ z=t \end{cases}$$

$\Rightarrow$ sendo $z=t$, então as equações paramétricas da reta que tem o ponto $A(4,-3,0)$ e é paralela ao vetor $v=(3,-5,1)$