

Ricevimento studenti - lunedì 26 giugno 2023

Titolo nota

26/06/2023

Buongiorno e benvenuti al ricevimento studenti.

Io sto lavorando al computer. Fatevi SENTIRE che accendo la telecamera e il microfono.

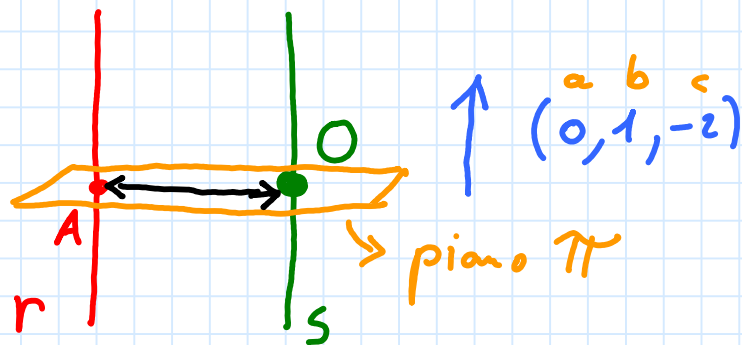
$$r: 4y + 2z + 1 = x - 1 = 0$$

$$s: 4y + 2z = x + 4y + 2z = 0 \quad O(0,0,0) \in S$$

$$r: \begin{bmatrix} 0 & 4 & 2 \\ 1 & 0 & 0 \end{bmatrix} \begin{array}{l} \nearrow l = 0 \\ \rightarrow m = -(-2) = +2 \\ \searrow n = -4 \end{array} \quad (0, 2, -4)$$

$$s: \begin{bmatrix} 0 & 4 & 2 \\ 1 & 4 & 2 \end{bmatrix} \begin{array}{l} \nearrow l = 0 \\ \rightarrow m = -(-2) = +2 \\ \searrow n = -4 \end{array} \quad (0, 2, -4)$$

$$r \parallel s$$



$$\pi: 0x + 1 \cdot y + (-2)z + 0 = 0$$

$$\pi: y - 2z = 0$$

$$\{A\} = r \cap \pi: \begin{cases} 4y + 2z + 1 = 0 \\ x - 1 = 0 \\ y - 2z = 0 \end{cases} \begin{cases} x = +1 \\ y = 2z \\ 4(2z) + 2z + 1 = 0 \end{cases}$$

$$\begin{cases} x=1 \\ z = -\frac{1}{10} \\ y = -\frac{2}{10} \end{cases}$$

$$A\left(1, -\frac{2}{10}, -\frac{1}{10}\right)$$

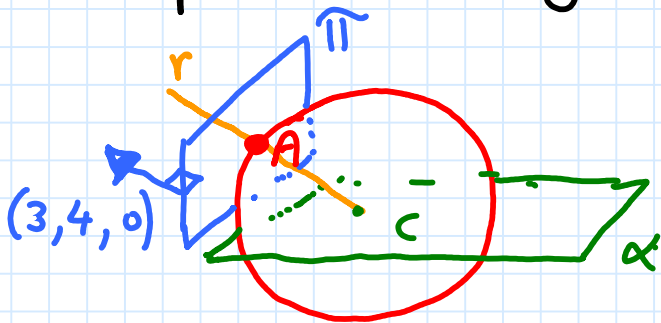
$$O(0,0,0)$$

$$d(r,s) = d(A,O) = \sqrt{(0-1)^2 + \left(0 + \frac{2}{10}\right)^2 + \left(0 + \frac{1}{10}\right)^2} =$$

$$= \sqrt{1 + \frac{4}{100} + \frac{1}{100}} = \sqrt{\frac{105}{100}} = \sqrt{\frac{21}{20}}$$

Sfera tangente in $A(0,0,-2)$ al piano

$\pi : 3x + 4y = 0$ e avente il centro C sul piano $\alpha : y - 4 = 0$.



$r : r \perp \pi$ et $A \in r$

$$r : \begin{cases} x = 3t + 0 \\ y = 4t + 0 \\ z = 0t + (-2) \end{cases}$$

Generic point of r $P(3t, 4t, -2)$

$$\{C\} = r \cap \alpha : \begin{cases} x = 3t \\ y = 4t \\ z = -2 \\ y - 4 = 0 \end{cases} \rightarrow 4t - 4 = 0 \Rightarrow t = 1$$

$$C(3, 4, -2) ; A(0, 0, -2)$$

$$\begin{aligned} \text{Raggio} &= d(C, A) = \sqrt{(3-0)^2 + (4-0)^2 + (-2-(-2))^2} = \\ &= \sqrt{9+16+0} = \sqrt{25} = 5 \end{aligned}$$

$$(x-3)^2 + (y-4)^2 + (z-(-2))^2 = 5^2$$

$$x^2 + y^2 + z^2 - 6x - 8y + 4z + 4 = 0$$