GROZA IULIA-DIANA

Question 2

$S = \{(x,y,z) \in \mathbb{R}^3 \mid 5x+7y+8z=0\}$

$S = \langle(\alpha,1,0),(\beta,0,1)\rangle$

$x = -\frac{7}{5}y - \frac{8}{5}z$ (From $5x+7y+8z=0$)

$\Rightarrow S = \{(-\frac{7}{5}y - \frac{8}{5}z, y, z) \mid y,z \in \mathbb{R}\} =$

$= \{(-\frac{7}{5}y, y, 0) + (-\frac{8}{5}z, 0, z) \mid y,z \in \mathbb{R}\} =$

$= \{y(-\frac{7}{5}, 1, 0) + z(-\frac{8}{5}, 0, 1) \mid y,z \in \mathbb{R}\} =$

$= \langle(-\frac{7}{5}, 1, 0), (-\frac{8}{5}, 0, 1)\rangle \Rightarrow$

$\Rightarrow \alpha = -\frac{7}{5}$ and $\beta = -\frac{8}{5} \Rightarrow \alpha + \beta = -\frac{15}{5} = -3$