

# 1(c) distância

2

vetor normal  $\underline{n} = (1, 2, -2)$

reta normal  $\ell(t) = t\underline{n}$  encontra

os planos  $P_1, P_2$  em pontos

$$P_1 = t_1 \underline{n} \quad \text{e} \quad P_2 = t_2 \underline{n}.$$

A distância entre  $P_1$  e  $P_2$  é a

distância entre  $P_1$  e  $P_2$ ,  $= \|P_1 - P_2\|$ .

$$P_1 = t_1 \underline{n} \quad \text{e} \quad (x, y, z) \cdot \underline{n} = 1$$

$$P_1 \cdot \underline{n} = 1$$

$$P_2 = t_2 \underline{n}, \quad P_2 \cdot \underline{n} = 6$$

$$t \underline{n} \cdot \underline{n} = t(1+4+4) = 9t = \begin{bmatrix} 1 \\ 6 \end{bmatrix}$$

$$9t_1 = 1, \quad t_1 = \frac{1}{9}$$

$$9t_2 = 6, \quad t_2 = \frac{6}{9} = \frac{2}{3}$$

$$\|P_1 - P_2\| = \|t_1 \underline{n} - t_2 \underline{n}\| = \frac{5}{9} \|\underline{n}\|$$

$$\|\underline{n}\| = \sqrt{9} = 3, \quad \text{distância} = \frac{5}{9} \cdot 3 = \boxed{\frac{5}{3}}$$