SKOZI TOČKO $A(1,0,3)$ POLOŽI TANGENTNO RAVNINO, NA PLOSKEV $P: z(x,y)=2x^2-y^2$, KI JE PRAVOKOTNA NA RAVNINO $\Sigma: x+2y=0$.

NAJ BO $T(a,b,c) \in P$

$F(x,y,z) = 2x^2-y^2-z$

$$\left.\begin{array}{l} F_x = 4x \\ F_y = -2y \\ F_z = -1 \end{array}\right\} \Rightarrow \vec{n} \parallel (4a,-2b,-1)$$

① $\vec{n} \perp \vec{n}_\Sigma = (1,2,0) \Rightarrow \vec{n}\cdot\vec{n}_\Sigma = 0$

$$(4a,-2b,-1)(1,2,0) = 0$$

$$4a-4b=0$$

$$\underline{\underline{a=b}}$$

② KER $A \subset P$, JE $\vec{AT} \perp \vec{n}$:

$\vec{AT} = (a-1, b, c-3)$

$\vec{AT}\cdot\vec{n} = (a-1,b,c-3)(4a,-2b,-1) = 0$

$$4a^2-4a-2b^2-c+3=0$$

UPOŠTEVAJMO, DA JE $a=b$: $\underline{2a^2-4a-c+3 \overset{*}{=} 0}$

③ $T(a,b,c) \in P \Rightarrow 2a^2-b^2=c \Rightarrow \underline{a^2=c}$

POGOJ $a^2=c$ VSTAVIMO V ENAČBO (*):

$$2a^2-4a-a^2+3=0$$

$$a^2 - 4a + 3 = 0$$

$$(a-1)(a-3) = 0$$

$$a_1 = 1 \Rightarrow b_1 = 1,\ c_1 = 1$$

$$a_2 = 3 \Rightarrow b_2 = 3,\ c_2 = 9$$

$$T_1(1,1,1) \Rightarrow \vec{n}_1 = (4,-2,-1)$$

TANG. RAVNINA Π_1: $4x - 2y - z = (4,-2,-1)(1,1,1)$

$$= 4 - 2 - 1$$

$$\underline{\underline{4x - 2y - z = 1}}$$

$$T_2(3,3,9) \Rightarrow \vec{n}_2 = (12,-6,-1)$$

Π_2: $12x - 6y - z = (12,-6,-1)(3,3,9)$

$$= 36 - 18 - 9$$

$$= 9$$

$$\underline{\underline{12x - 6y - z = 9}}$$