

$$\det \begin{pmatrix} -4 & 0 & \frac{3}{2} \\ -4 & 0 & \frac{3}{2} \\ 2 & -2 & \frac{3}{2} \end{pmatrix} = -4(-4)^2(2 - 2 \cdot \frac{3}{2}) = 4^3 \cdot 1 > 0 \Rightarrow (-4, 0, \frac{3}{2}) \text{ punto di} \\ \text{max relativo per } f \\ \text{sul vucolo } g$$

$$\det \begin{pmatrix} -2 & 2\sqrt{3} & 1 \\ -2 & 2\sqrt{3} & 1 \\ 4 & -2 & 1 \end{pmatrix} = -4 \cdot 4 \cdot 3(4-2) - 4(-2)^2(2-2) = -4^2 \cdot 3 \cdot 2 < 0 \Rightarrow (-2, 2\sqrt{3}, 1) \\ \text{punto di min relativo} \\ \text{per } f \text{ sul vucolo } g$$

$$\det \begin{pmatrix} -2 & -2\sqrt{3} & 1 \\ -2 & -2\sqrt{3} & 1 \\ 4 & -2 & 1 \end{pmatrix} = -4 \cdot 4 \cdot 3 \cdot (4-2) - 4 \cdot 4(2-2) = -4^2 \cdot 3 \cdot 2 < 0 \Rightarrow (-2, -2\sqrt{3}, 1) \\ \text{punto di minimo relativo} \\ \text{per } f \text{ su } g.$$