

$$f(x,y) = \rho$$

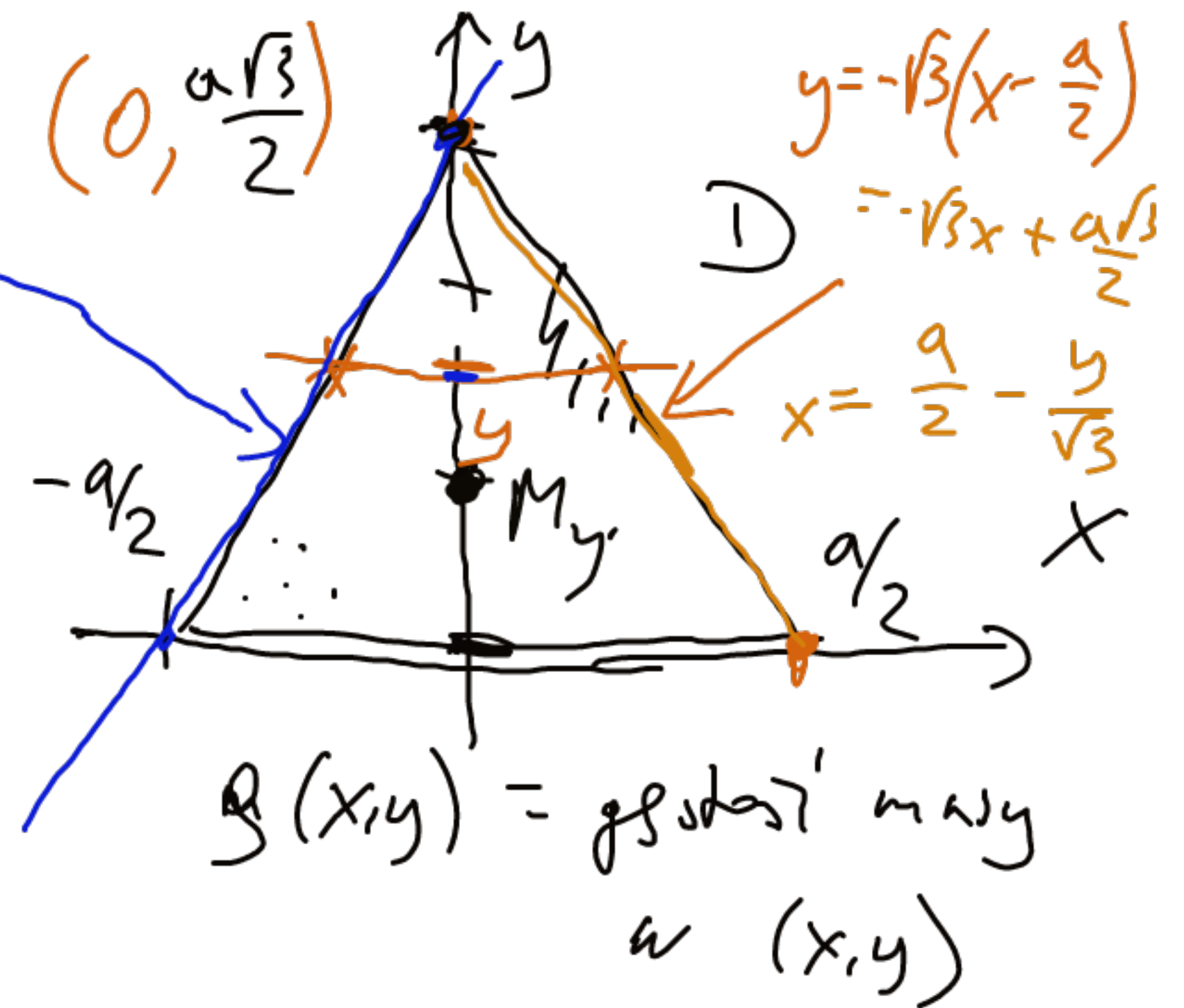
$$y = \sqrt{3} \left(x + \frac{a}{2} \right)$$

$$y - a \frac{\sqrt{3}}{2} = \sqrt{3} x$$

$$M = \iint_D \rho \, dx \, dy = \dots = \frac{a\sqrt{3}}{2} \cdot a \cdot \frac{1}{2} = \rho \frac{a^2\sqrt{3}}{4}$$

$$M_x = \iint_D x \cdot \rho \, dx \, dy = \dots = 0$$

$$\frac{y}{\sqrt{3}} - \frac{a}{2} = x$$



$$M_y = \iint_D y \cdot \rho \, dx \, dy =$$

$$= \int_0^{\frac{a\sqrt{3}}{2}} dy \int_{\frac{y}{\sqrt{3}} - \frac{a}{2}}^{\frac{a}{2} - \frac{y}{\sqrt{3}}} \rho y \, dx =$$

$$= \int_0^{\frac{a\sqrt{3}}{2}} \rho y \cdot x \Big|_{\frac{y}{\sqrt{3}} - \frac{a}{2}}^{\frac{a}{2} - \frac{y}{\sqrt{3}}} dy = \int_0^{\frac{a\sqrt{3}}{2}} \rho y \cdot 2 \left(\frac{a}{2} - \frac{y}{\sqrt{3}} \right) dy =$$

$$= \int_0^{\frac{a\sqrt{3}}{2}} \left(a \rho y - \frac{2}{\sqrt{3}} \rho y^2 \right) dy = \left(a \rho \frac{y^2}{2} - \frac{2}{\sqrt{3}} \rho \frac{y^3}{3} \right) \Big|_0^{\frac{a\sqrt{3}}{2}} = \frac{M_y}{M} = \frac{a^3 \rho \frac{1}{8}}{\rho \frac{a^2\sqrt{3}}{4}} = a \frac{1}{2} \frac{\sqrt{3}}{3}$$

$$M = \iint_D \rho(x,y) \, dx \, dy$$

$$M_x = \iint_D x \rho(x,y) \, dx \, dy$$

$$M_y = \iint_D y \rho(x,y) \, dx \, dy$$

$$\text{Stodola maszty} = \left(\frac{M_x}{M}, \frac{M_y}{M} \right)$$