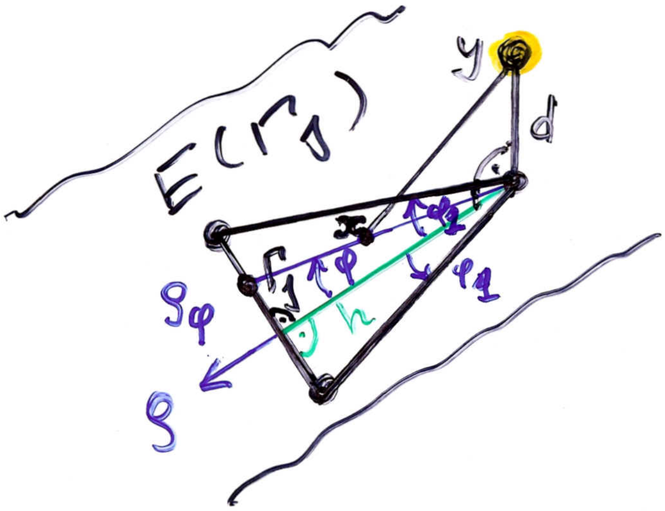
2. y is located on the straight line that is orthogonal to the plane $E(\Gamma_j) \supset \Gamma_j$ and that goes through a vertex of the triangle Γ_j:



$$|x-y|^2 = d^2 + \varrho^2$$

$$\cos\varphi = \frac{h}{\varrho_\varphi}$$

$$dS_x = \varrho \, d\varrho \, d\varphi$$

$$\int_{\Gamma_j} E(x,y)\, dS_x = \frac{1}{4\pi} \int_{\Gamma_j} \frac{dS_x}{|x-y|}$$

$$= \frac{1}{4\pi} \int_{\varphi_1}^{\varphi_2} \int_0^{\frac{h}{\cos\varphi}} \frac{\varrho}{\sqrt{\varrho^2+d^2}} \, d\varrho \, d\varphi$$

$$\frac{d}{d\varrho} (\varrho^2+d^2)^{1/2} = \frac{1}{2} (\varrho^2+d^2)^{-1/2} \cdot 2\varrho$$

$$= \frac{1}{4\pi} \int_{\varphi_1}^{\varphi_2} (\varrho^2+d^2)^{1/2} \Big|_0^{\frac{h}{\cos\varphi}} d\varphi$$

$$= \frac{1}{4\pi} \int_{\varphi_1}^{\varphi_2} \sqrt{\frac{h^2}{\cos^2\varphi} + d^2}\, d\varphi - \frac{d}{4\pi} \int_{\varphi_1}^{\varphi_2} d\varphi$$

(mms)

$$= \frac{h}{8\pi} \ln \frac{\sqrt{1-\varkappa^2 \sin^2\varphi} + \sqrt{1-\varkappa^2}\,\sin\varphi}{\sqrt{1-\varkappa^2 \sin^2\varphi} - \sqrt{1-\varkappa^2}\,\sin\varphi} + \frac{d}{4\pi}\left(\arcsin(\varkappa \sin\varphi) - \varphi\right) \Big|_{\varphi_1}^{\varphi_2}$$

with $\varkappa^2 = d^2/(d^2+h^2)$.