

PICT:

$$f(x,y) = \frac{1}{2\pi\sqrt{1-\rho_{XY}^2}} e^{-(x^2-2\rho_{XY}\cdot xy+y^2)/2(1-\rho_{XY}^2)}$$

where

$$\rho_{XY} = \frac{\sigma_{XY}}{\sigma_X\sigma_Y} = \frac{E\{XY\} - \mu_X\mu_Y}{\sqrt{E\{X^2\} - \mu_X^2} \cdot \sqrt{E\{Y^2\} - \mu_Y^2}} = 0$$

