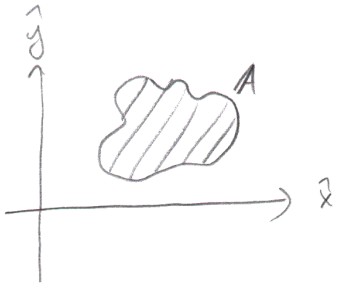
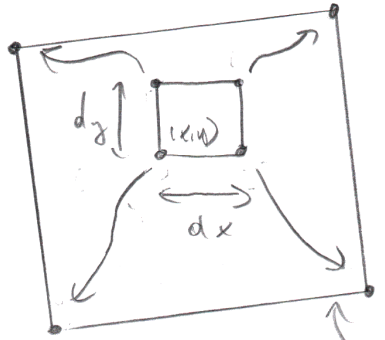
dwa wymiary:



$$P(\pi \in A) = \iint_A g(x,y)\,dx\,dy$$

$g(x,y)$ – funkcja gęstości prawdopodobieństwa

$$\begin{cases} x' = x'(x,y) \\ y' = y'(x,y) \end{cases}$$



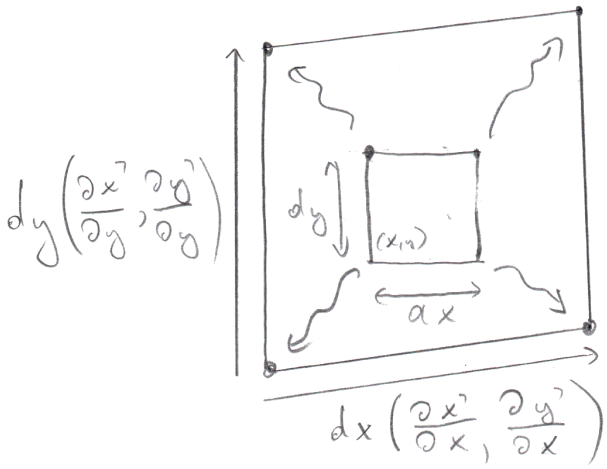
$(x'(x,y), y'(x,y))$

$g(x,y)\,dx\,dy = g'(x',y') \langle \text{powierzchnia} \rangle$

$$x'(x+dx, y) \approx x'(x,y) + dx \frac{\partial x'}{\partial x}(x,y)$$
$$y'(x+dx, y) \approx y'(x,y) + dx \frac{\partial y'}{\partial x}(x,y)$$

$$x'(x, y+dy) \approx x'(x,y) + dy \frac{\partial x'}{\partial y}(x,y)$$
$$y'(x, y+dy) \approx y'(x,y) + dy \frac{\partial y'}{\partial y}(x,y)$$

$$x'(x+dx, y+dy) \approx x'(x,y) + dx \frac{\partial x'}{\partial x}(x,y) + dy \frac{\partial x'}{\partial y}(x,y)$$
$$y'(x+dx, y+dy) \approx y'(x,y) + dx \frac{\partial y'}{\partial x}(x,y) + dy \frac{\partial y'}{\partial y}(x,y)$$



powierzchnia

$$g(x,y)\,dx\,dy = g'(x',y')\left|\det\begin{pmatrix}\frac{\partial x'}{\partial x} & \frac{\partial x'}{\partial y}\\ \frac{\partial y'}{\partial x} & \frac{\partial y'}{\partial y}\end{pmatrix}\right| dx\,dy$$

Jacobian