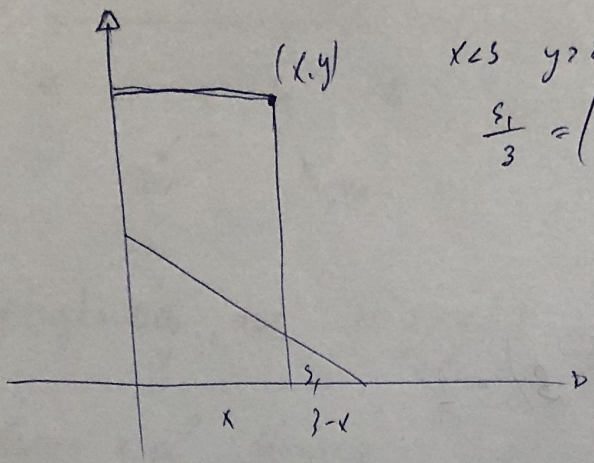
5)

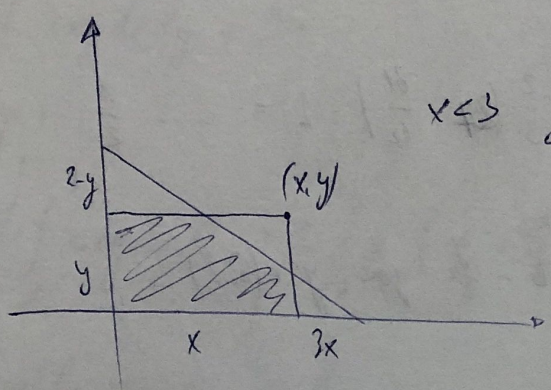


$x<3 \quad y>2$

$\frac{S_1}{3} = \left(\frac{3-x}{3}\right)^2 \Rightarrow F_{x,y}(x,y) = \frac{3 - \frac{(3-x)^2}{3}}{3} =$

$= 1 - \frac{(3-x)^2}{9}$

6)



$x<3 \quad y<2 \quad и \quad 3y+2x>6$

$\frac{S_1}{3} = \left(\frac{2-y}{2}\right)^2 \Rightarrow S_1 = \frac{3}{4}(2-y)^2$

Аналогично $S_2 = \frac{1}{3}(3-x)^2$

Следов. $F_{x,y}(x,y) = \frac{3 - \frac{1}{3}(3-x)^2 - \frac{3}{4}(2-y)^2}{3}$

$2x+3y>6$

$\Rightarrow f_{x,y}(x,y) = \frac{1}{3} \mathbb{1}_{\{(x,y) \in \Delta\}},$

$F_{x,y}(x,y) = \begin{cases} 0 & \text{ако } x<0 \ y<0 \\ \frac{xy}{3} & \text{в } \Delta\text{-ка} \\ 1 - \frac{(3x)^2}{9} & \text{ако } x<3 \ y>2 \\ 1 - \frac{1}{4}(1-y)^2 & \text{ако } x>3 \ y<2 \\ 1 & \text{ако } x>3 \ y>2 \end{cases}$

А ако $0<x<3 \quad 0<y<2$

$f_{x,y}(x,y) = \begin{cases} \frac{1}{3} & \text{ако е в } \Delta\text{.и.е} \\ & x \in [0,3] \quad y \in [0,2] \\ & 2x+3y<6 \\ 0 & \text{иначе} \end{cases}$

~~$f_x = ? \quad f_{x,y}(x,y)$~~ $f_x = ? \quad f_X(x) = \int_{-\infty}^{\infty} f_{x,y}(x,y)\,dy = \int_0^{2-\frac{2}{3}x} \frac{1}{3}\,dy =$

за $x \in [0,3]$

$= \frac{1}{3}\left(2 - \frac{2}{3}x\right)$

Ако $x \notin [0,3]$, тогава $f_X(x) = 0$

$* f_X(x) = \int_{-\infty}^{\infty} \frac{1}{3} \mathbb{1}_{\{x>0, y>0, 3y+2x<6\}}\,dy = \int_0^{2-\frac{2}{3}x} \frac{1}{3} \mathbb{1}_{\{x>0, x<3\}}\,dy = \frac{1}{3}\left(2 - \frac{2}{3}x\right) \mathbb{1}_{\{x \in (0,3)\}}$