

$$\iint_{\mathcal{V}} f_{v_1, v_2}(v_1, v_2) \, dv_1 \, dv_2$$

$$= \iint_{\mathcal{Y}} f_{y_1, y_2}(y_1, y_2) \, dy_1 \, dy_2$$

$$\begin{pmatrix} y_1 \\ y_2 \end{pmatrix} \xrightarrow{h_1, h_2} \begin{pmatrix} v_1 \\ v_2 \end{pmatrix}$$

$$v_1 = y_1 y_2$$

$$\xleftarrow{h_1^{-1}, h_2^{-1}}$$

$$U = Y_1 Y_2 \quad A_u = \{(y_1, y_2) : y_1 y_2 \leq u\}$$

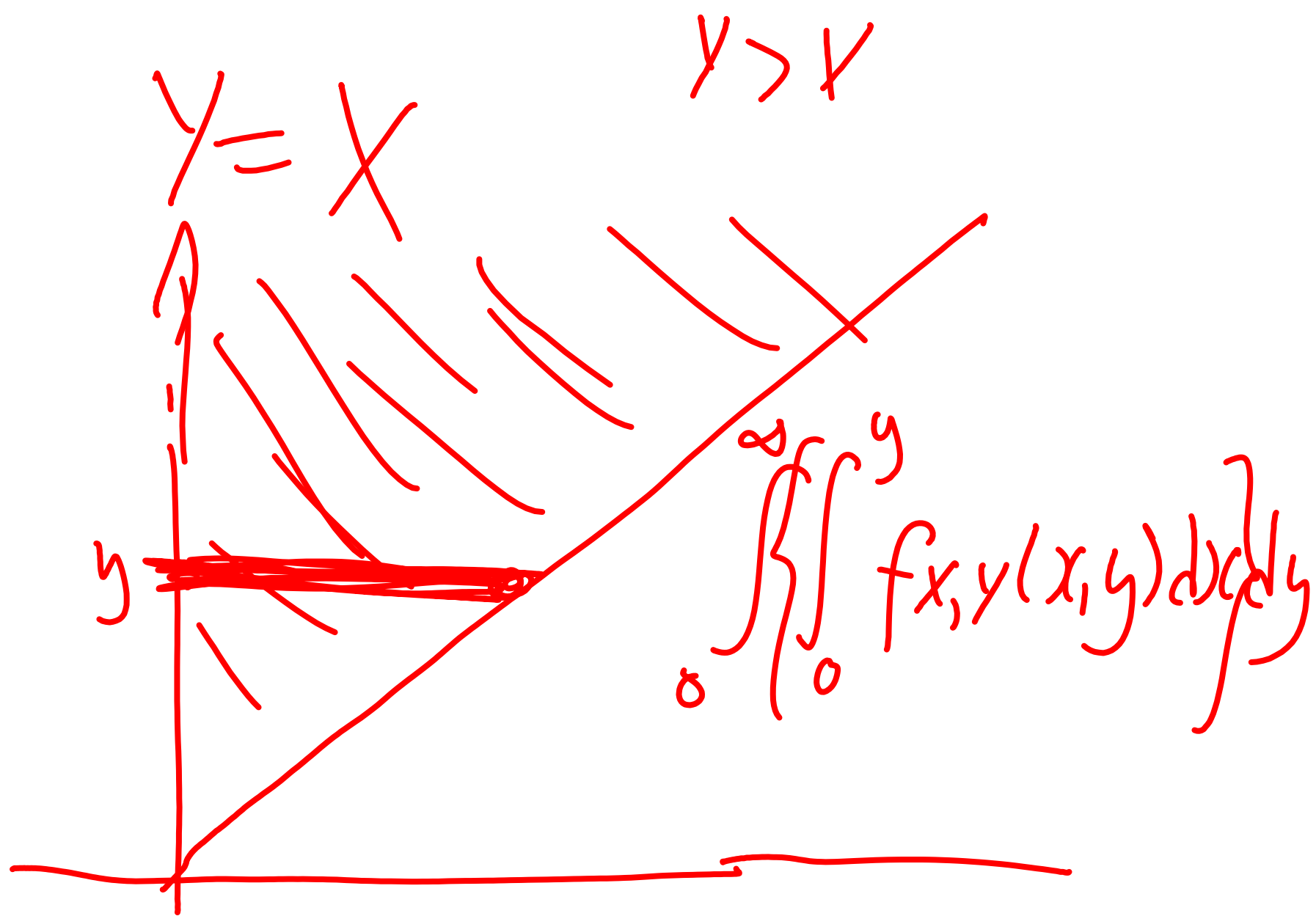
$$F_U(u) = P[U \leq u]$$

$$= P[Y_1 Y_2 \leq u]$$

$$= \iint_{A_u} f_{Y_1, Y_2}(y_1, y_2) dy_1 dy_2$$

$$P[Y > X]$$





$$\int_0^{\infty} \int_0^y f_{x,y}(x,y) dx dy$$

$$x, y \in \mathbb{R}^+$$

$$P[X < Y] = P[\underline{Y^2 < Y}]$$

$$X = Y^2$$

$$x = Y(1-Y)$$

