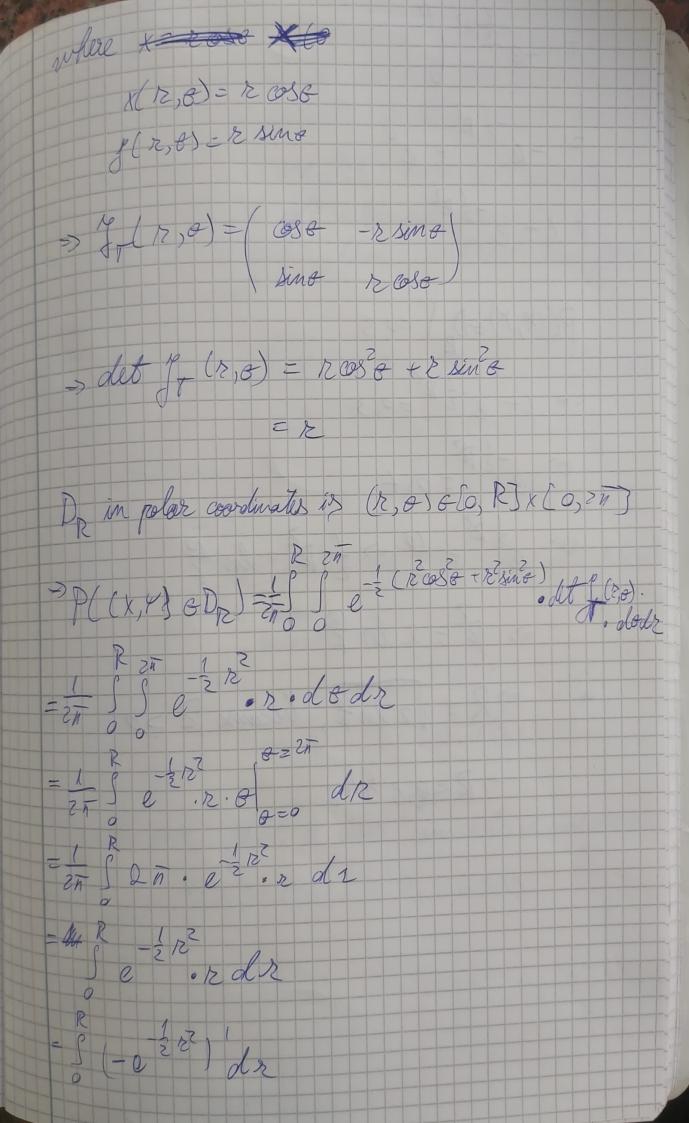
8.  $X, i \in \mathcal{N}(0,1)$   $\Rightarrow polf. of Y is <math>f_{X}(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}x^{2}}$   $polf. of Y is <math>f_{Y}(y) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}y^{2}}$  $P((x,t)_{\Theta R}) = SS f_{(x,r)}(x,r) d_{x}d_{x}$ indgr. De fx (x) - fy (p) dy dx  $= \int \int \frac{1}{2\pi} \cdot e^{-\frac{1}{2}x^2} - \frac{1}{2} \int \frac{1}{2} dy dx$ = 1 SS = \frac{1}{2}(\frac{1}{2}\end{2})dpdx He will use a charge of variable (x, y) > T(2, 8) = (2 cos 8, 2 sin 8), 2- radius from cartesian to polar. For this we need the determinant of the Jacolian matrix of T JT (1,0) = / 2x (1,8) 0 x (7,0) 04 (2,0) 0 g (7,0)



$$= -e^{\frac{1}{2}z^{2}} | R$$

$$= -e^{\frac{1}{2}z^{2}} | R$$

$$= -e^{-\frac{1}{2}z^{2}} + e^{0}$$

$$= (-e^{-\frac{1}{2}z^{2}} = 0, 3)$$

$$= (-e^{-\frac{1}{2}z^{2}} = 0, 3)$$

$$= e^{-\frac{1}{2}z^{2}} = 0, 4$$

$$= e^{\frac{1}{2}z^{2}} = 0, 4$$

$$= e^{\frac{1}{2}z^{2}} = 10 \Rightarrow \frac{1}{2}z^{2} = 2n \frac{10}{2}$$

$$\Rightarrow R^{2} = 2 \ln \frac{10}{2}$$

$$\Rightarrow R = \sqrt{2 \ln \frac{10}{2}}, \text{ becaux } R > 0$$

$$\Rightarrow R = 0, 8 \text{ hig}$$