$$E[X+Y] = \int\int p(x,y)(x+y)\,dx\,dy$$

$$= \int\int x\,p(x,y)\,dx\,dy + \int\int y\,p(y)\,dx\,dy$$

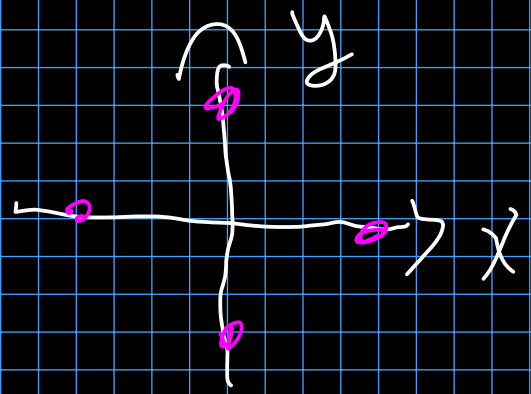
$$= \int x\,p(x)\,dx + \int y\,p(y)\,dy$$

$$= E[X] + E[Y]$$

X, Y Independent $E[XY] = \int\int xy\,dx\,dy$

$= \int\int xy\,p(x)p(y)\,dx\,dy$

$= \int x\,p(x)\,dx \int y\,p(y)\,dy$



4 ez, 1:1 mely events

$E[X \cdot Y] = 1 \cdot 0 \frac{1}{4} \dots$

$= 0 = E[X] E[Y]$


CDF
S


the face
looks like
a man