$V(X) = E[X^2] - (E(X))^2$

Date

(iii) as it is equal to the marginal PMF product of $(P_X=2)$ & $P(Y=4)$ then, yes it is independant.

✓

COVARIANCE	CORRELATION.
Used specifically to describe association b/w two Random Variables	Used to describe the association b/w two quantities
It uses probability to evaluate.	It uses numericaldata to evaluate.
It has dimensions (xandy) It has units.	It is dimensionless and unitless.
	The value typically ranges from (-1 to 1).

$Cov(X,Y) > 0$ positivelycorrelated

$COV(X,Y) < 0$ negatively "

$COV(X,Y) = 0$ not correlated.

$$COV(X,Y) = E[XY] - E[X]\,E[Y]$$

~ x ~

Important Note:-

Consider a random Variable X has mean μ & $(\text{std dev})^2 = \sigma^2$

$X \to \sigma^2$ (variance)

$X \to \mu$ (mean)

Now consider another random variable A such that

Date

$A = kX$

then

expected value of that Random Variable

$E[A] = k\mu$

$\sigma_A^2 = k^2\sigma^2$. where k is a constant.