

Chi Squared Test

BY XYZVIDEO



The purpose of the test

To ask

"Is the observed data satisfy your assumption?"

The example of test

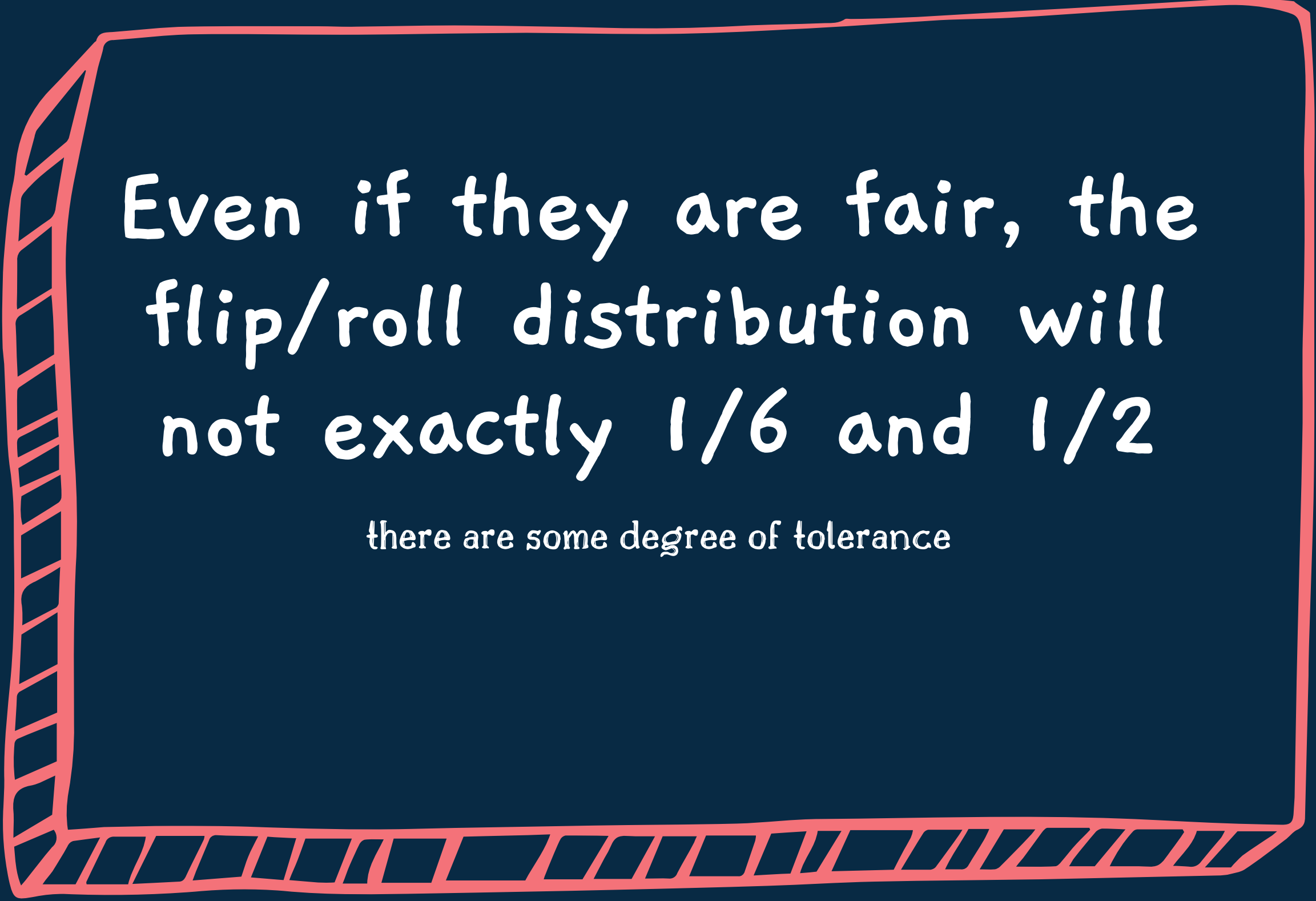
IS THE DICE IS FAIR

if yes, then the distribution for
each side must be $1/6$

IS THE COIN FLIP IS FAIR

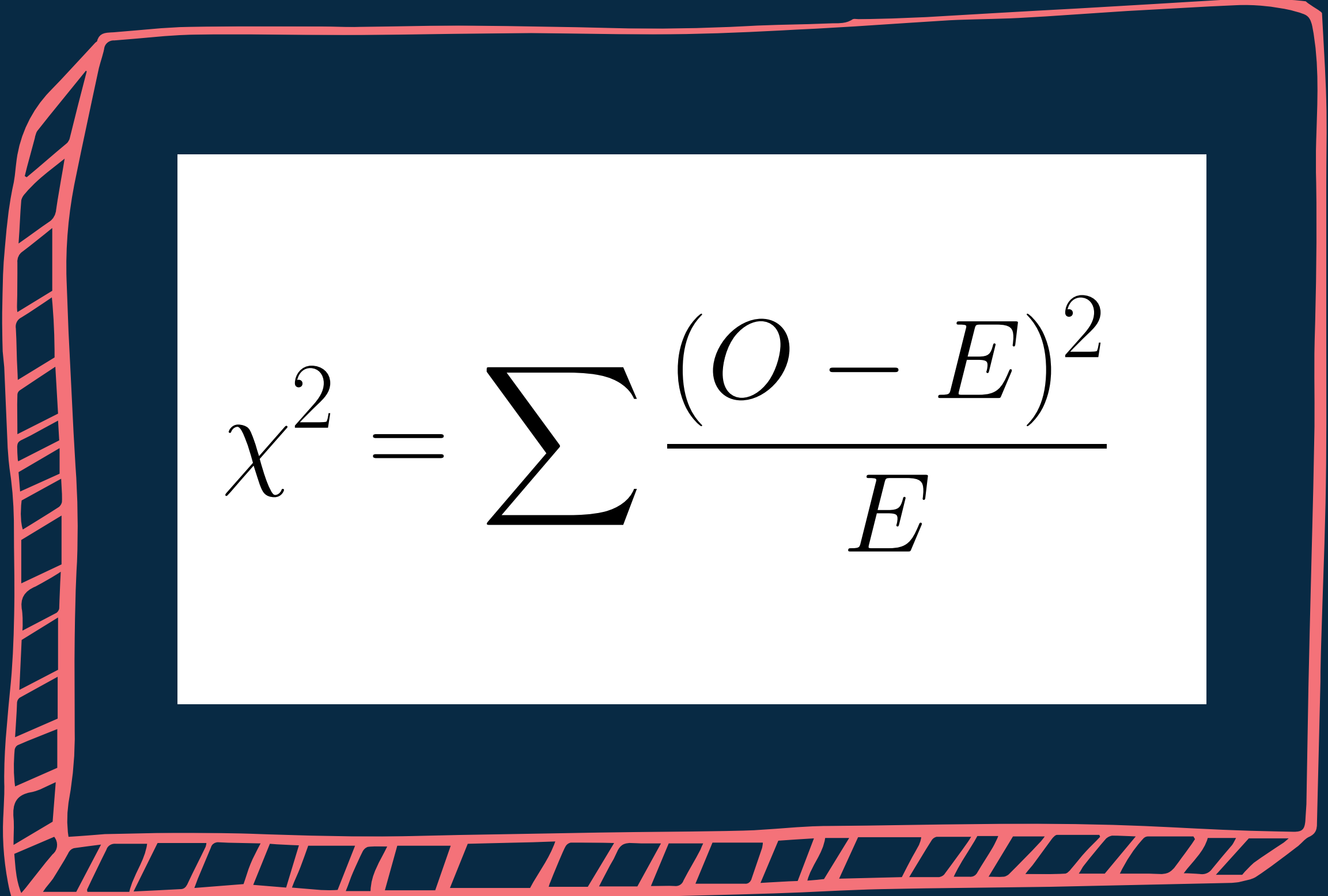
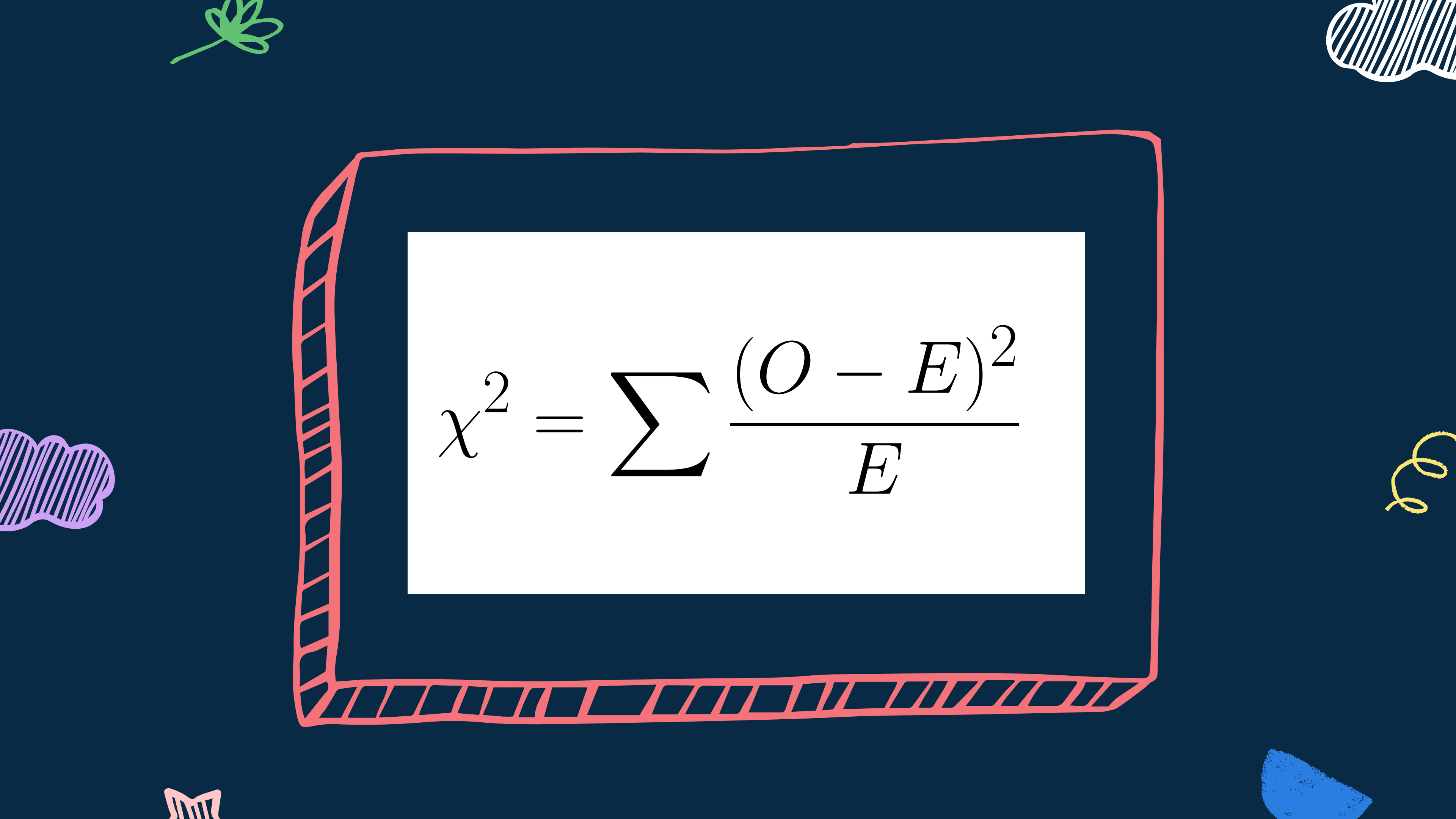
if yes, then the distribution of each
side of coin must be $1/2$


This test is used only for
categorical variables!



Even if they are fair, the
flip/roll distribution will
not exactly $1/6$ and $1/2$

there are some degree of tolerance


$$\chi^2 = \sum \frac{(O - E)^2}{E}$$





First step to use chi squared test, make a hypothesis

DICE CASE

null hypothesis: The dice is fair
alt hypothesis: The dice is not fair




COIN CASE

null hypothesis: The coin is fair
alt hypothesis: The coin is not fair





2nd, Define alpha


$$\alpha = 0.05$$

convert chi square value to p-value

