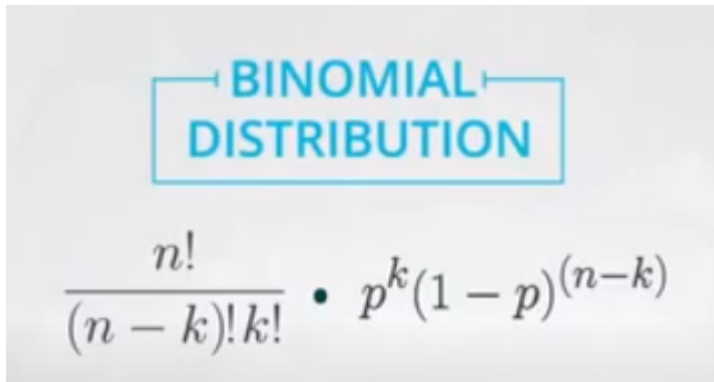


Binominal Distribution

We here continue over the last lesson but we have a mathematical formula of possible ways to get a side of a coin depending on probability



$$\frac{n!}{(n-k)!k!} \cdot p^k(1-p)^{(n-k)}$$

EX:



$$\frac{n!}{(n-k)!k!} p^k(1-p)^{(n-k)}$$

in the previous example if we flipped a coin (n) times and the we wanted to see how many heads appeared (k)

the formula will use the binominal formula as stated in the example

Examples with solutions:

COIN FLIPS
Probabilities

$$P(\text{HEADS}) = 0.8$$

Flip Coin 5 TIMES

$$P(\# \text{ HEADS} = 4)$$



Solution:

COIN FLIPS
Probabilities

$$P(\text{HEADS}) = 0.8$$

Flip Coin 5 TIMES

$$P(\# \text{ HEADS} = 4)$$

$$\frac{5!}{4! \cdot 1!} = 5 \quad (0.8)^4 \cdot (0.2)^1$$

$$0.4096$$

In the previous example, we flipped the coin 5 times and wanted to check how many times we get 4 heads

by **substituting** in the binominal formula we get the **number of times the condition appears**

multiplying the condition by the probability of said condition gets us the **Probability**