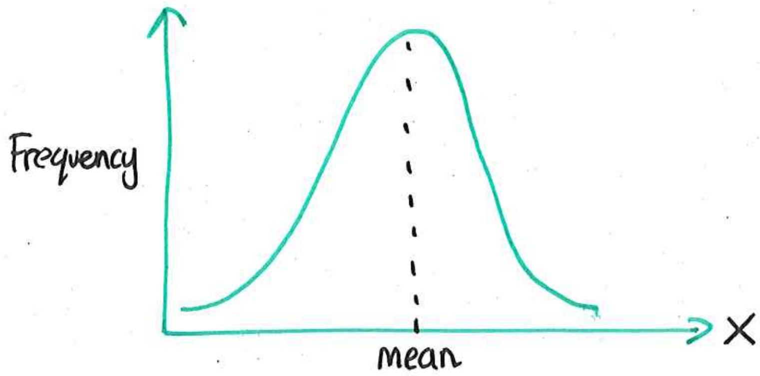
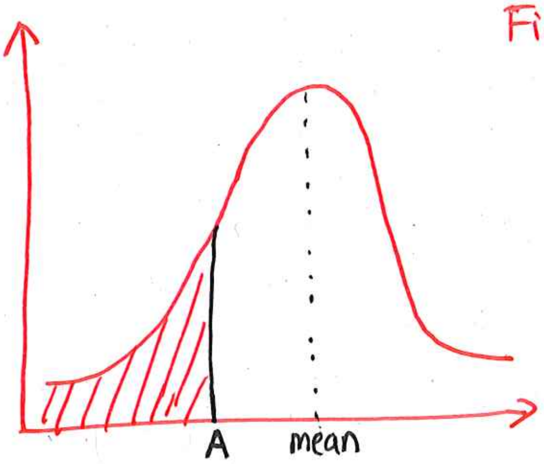
NORMAL DISTRIBUTION



$X \sim N(\text{mean}, \text{variance})$

$X \sim N(\mu, \sigma^2)$

NORMAL CD



Find $P(X < A) =$

NORMAL CD

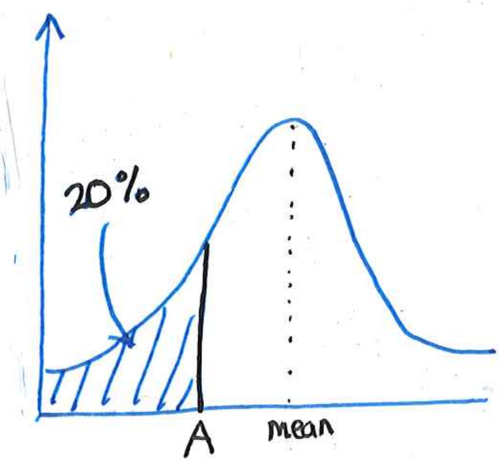
Lower : -100000 !

upper : A

μ : mean

σ : standard deviation

INVERSE NORMAL



Find A

inverse normal

Area : 0.2

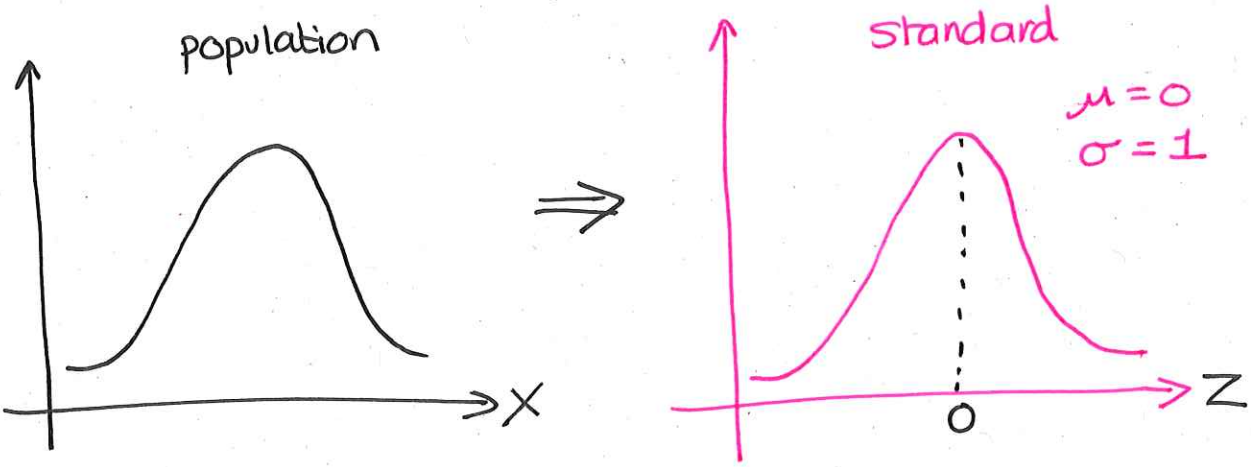
σ : standard deviation

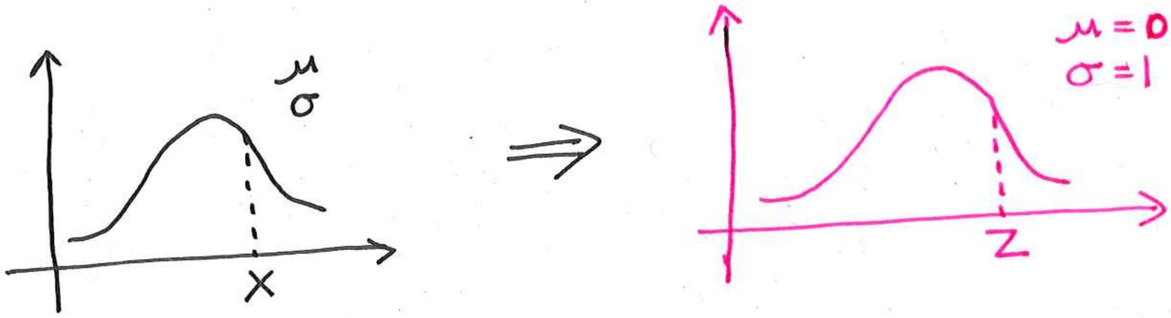
μ : mean

STANDARD NORMAL

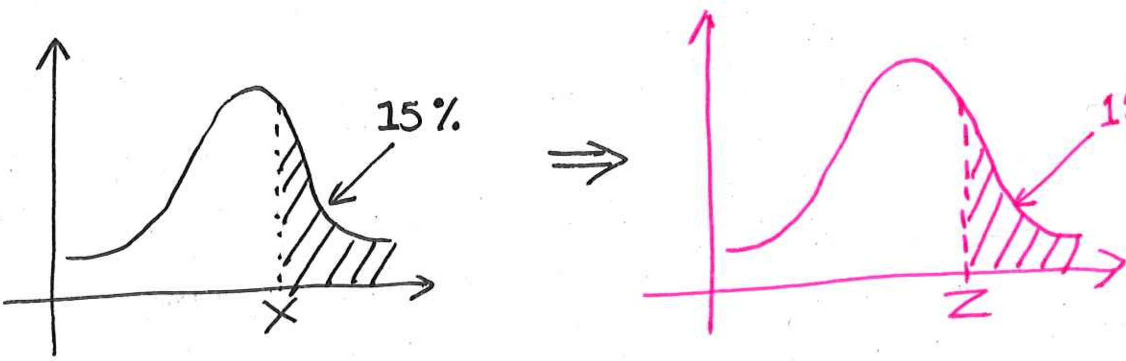
convert population distribution to standard distribution.

why? because standard distribution has know mean ($\mu = 0$) and standard deviation ($\sigma = 1$) values

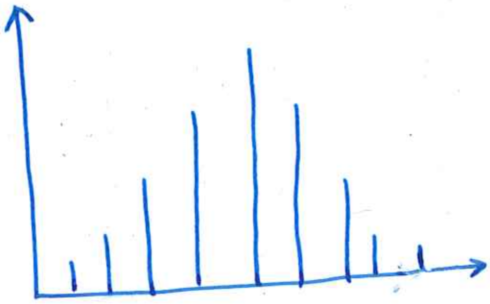




$$Z = \frac{X - \mu}{\sigma}$$



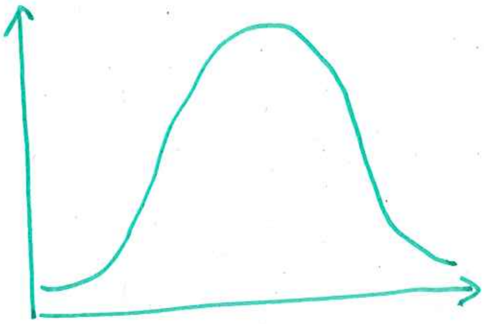
APPROXIMATING BINOMIAL DISTRIBUTION



BINOMIAL DISTRIBUTION

$X \sim B\left(\text{number trials}, \text{probability of success}\right)$

$X \sim B(n, p)$

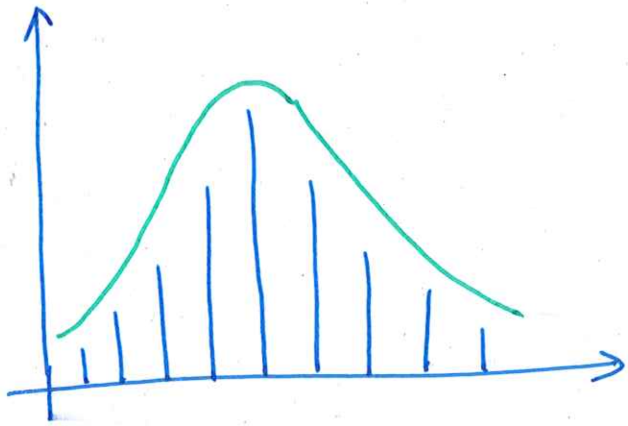


NORMAL DISTRIBUTION

$X \sim N(\text{mean}, \text{variance})$

$X \sim N(\mu, \sigma^2)$

If n is large and p is close to 0.5 then can binomial distribution can be approximated by normal distribution



$X \sim B(n, p)$

$Y \sim N\left(np, \sqrt{np(1-p)}^2\right)$

mean $= np$

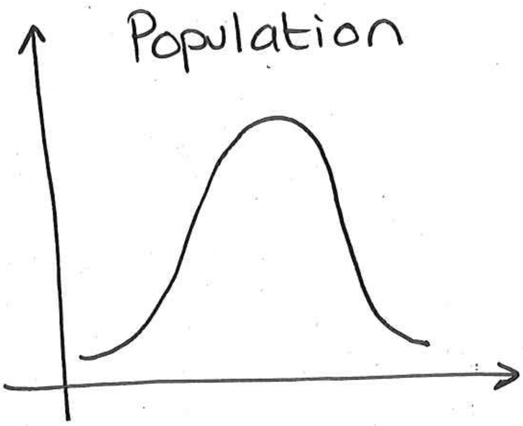
Standard Deviation $= \sqrt{np(1-p)}$

Continuity Correction

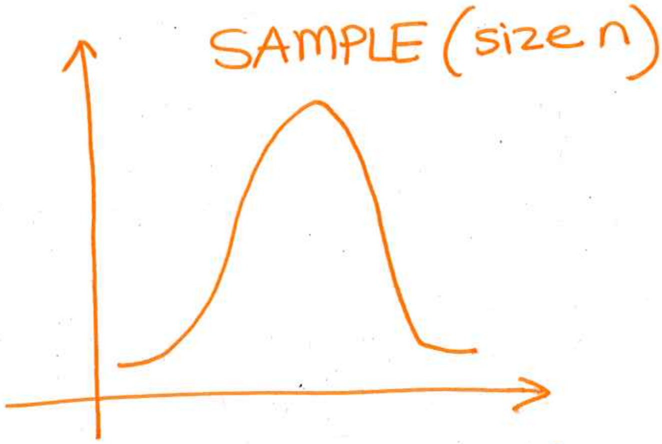
Discrete $X = 30$

Continuous $29.5 \leq Y < 30.5$

HYPOTHESIS TESTING ON SAMPLE MEAN



$X \sim N(\mu, \sigma)$



$X \sim N\left(\mu, \sqrt{\frac{\sigma^2}{n}}\right)$

mean = μ (of population)

SD = $\sqrt{\frac{\sigma^2}{n}}$

Step 1. State your hypotheses

Step 2. State your distribution for the sample

Step 3. Calculate the probability of your sample happening (using sample normal distribution)

Step 4. Compare probability with the significant level

Step 5. Accept or Reject your H_0