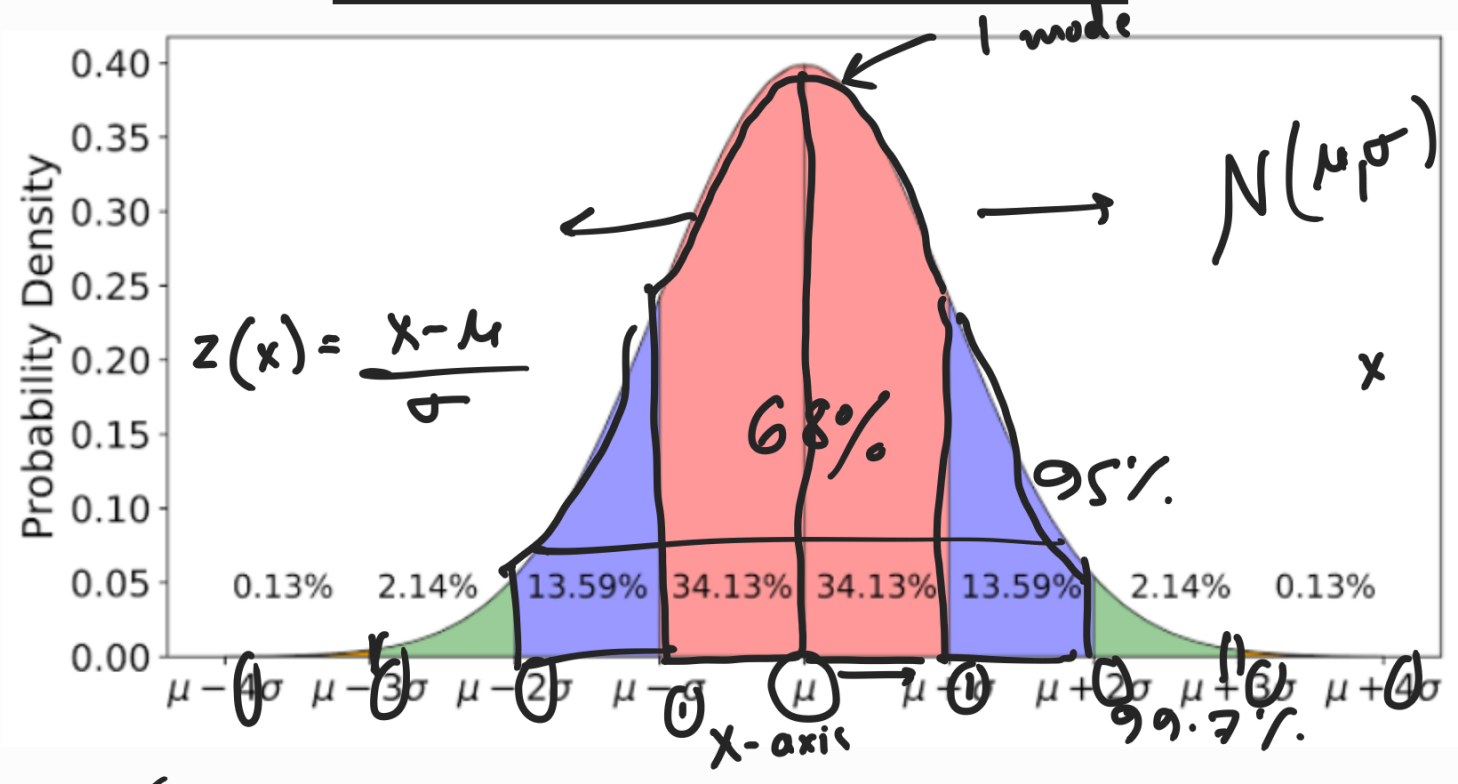
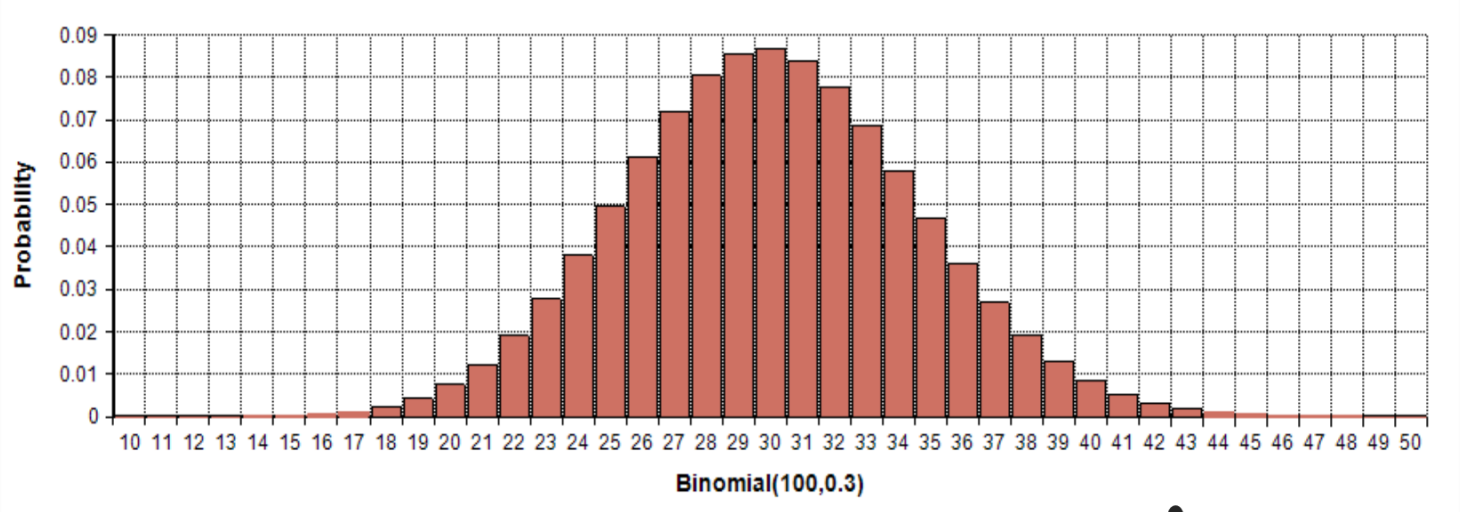
NORMAL DISTRIBUTION



✓ pnorm (x, mean = μ, sd = σ)

✓ qnorm (100 - cutoff percentage, mean = μ, sd = σ)

BINOMIAL DISTRIBUTION



$$p' = p^k \cdot (1-p)^{(n-k)}$$

↳ probability of your desired outcomes

n = number of trials

k = number of success observed in n trials.

$$P(k \text{ successes in } N \text{ trials}) = {}^{n}C_k \, p^k (1-p)^{n-k}$$

- ✓ Trials are independent
- ✓ N must be fixed
- ✓ There must be only 2 outcomes
- ✓ p is the same for every trial

relating a binomial distribution to a normal distribution

mean = $n \cdot p$

std = $\sqrt{n \cdot p \cdot (1-p)}$

10 expected successes
10 expected failures
} $N(\mu, \sigma)$

$\Downarrow$

$\rightarrow np \geq 10$

$\rightarrow n(1-p) \geq 10$

Success-failure rule:

Binomial $(n, p) \sim N(\mu, \sigma)$

$\mu = np$

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