p-value

→ The p-value is the probability value, calculated from a statistical test. (Corresponding to Zscore of a sample)

→ p-value in hypothesis testing is used to decide whether to reject a null hypothesis or not.

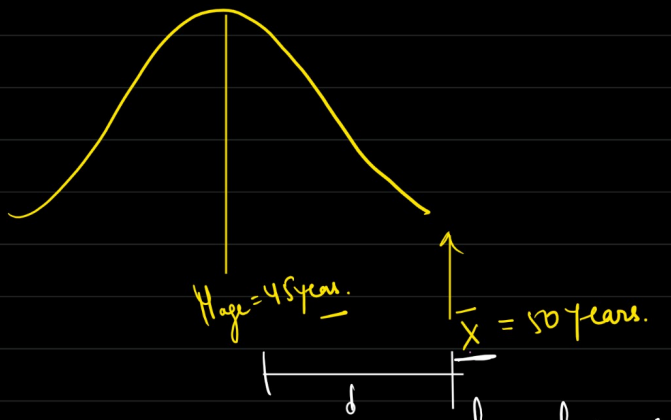
* You don't know anything about population, you made a claim / hypothesis → Hage: 45 years.

* Claim / hypothesis: Hage of Employee is 45 years (Pop)
→ You took a sample.
→ Calculated average age of that sample → 50 years.

Comments:-

→ Can I say 50 years is far from 45 years, that's why you reject the claim?
→ yes

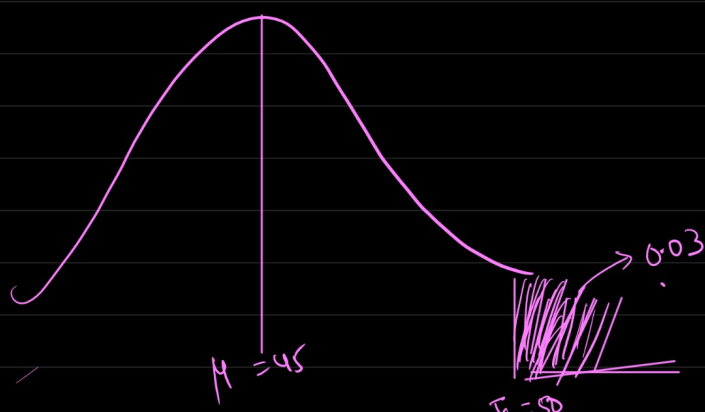
Why so?
Why not this conclusion can be made at 48 years | 46 years | 47 years?



To know how far a dP is away from mean → Calculate Zscore.

$$Z_{score} = \frac{\bar{x} - H}{\sigma/\sqrt{n}}$$

Corresponding to Z score, you will be having probability value.



⇓
p-value → Z table

Prob of falling a point in that region

Z table
1.34
1.30 0.04
1.30 1.04
P-value.

How far?

→ clinical trial of a medicine
↳ 1000 person
↳ 950 → got cured with this medicine
↳ medicine is working 95%.

→ out of 100 times, 95% will work [95% confident]

→ 5% of the time medicine doesn't work [5% margin of error]

⇓
level of significance
⇓
α

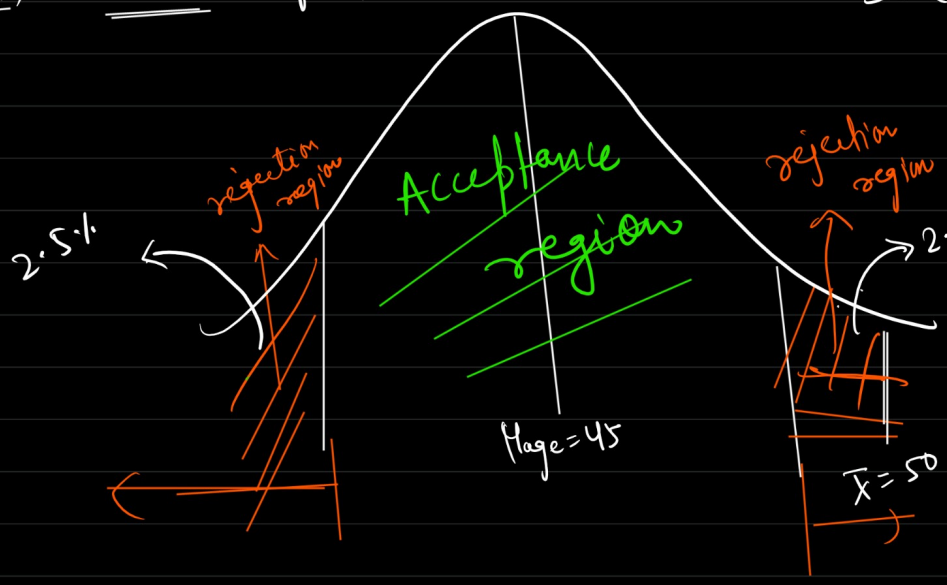
* Conduct experiment with 5% level of significance
⇓
I am ready to accept 5% error in experiment.

5% (α) → Total error of experiment.

5% (level of significance) or Margin of error = Confidence interval

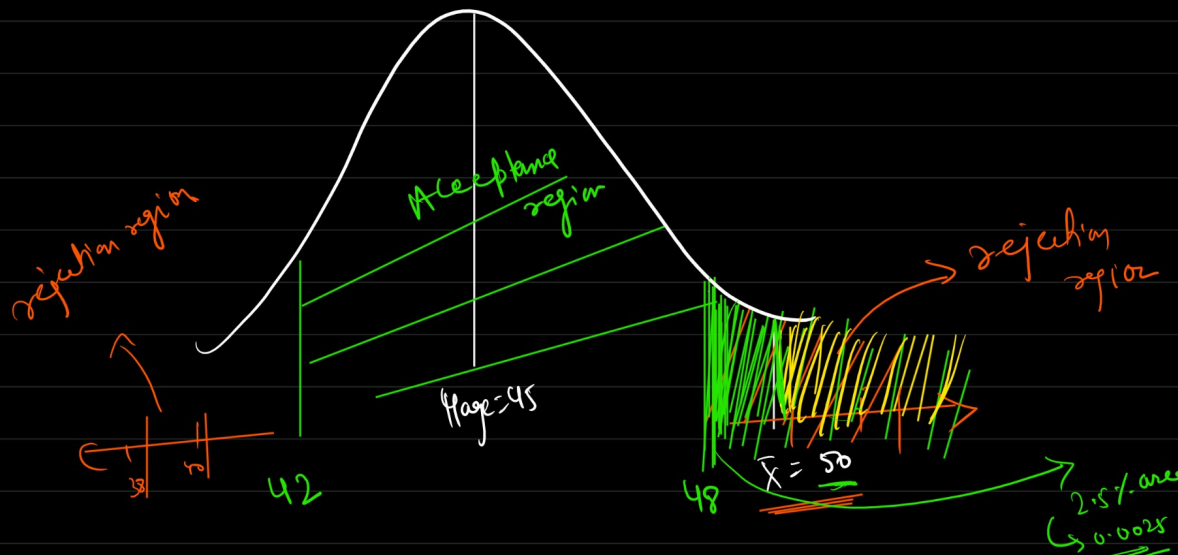
$\Rightarrow 1 - 0.05$

$\Rightarrow 0.95$



It mean in 95% of the distribution, you will be confident that your claim is correct.

→ 95% confidence should be around the population mean.



$$Z\text{ score} = \frac{\bar{x} - \mu}{\sigma/\sqrt{n}} = p\text{ value}$$

Corresponding to Z score

* if p value < Significance value (α)

Corresponding to statistics

reject the H_0

else fail to reject H_0