Example: Two-Tail Test

A pharmaceutical company claims that each of its pills contains exactly 20.00 milligrams of Cumidin (a blood thinner). You sample 64 pills and find that the sample mean $\overline{X}$ =20.50 mg and s = .80 mg. Should the company's claim be rejected? Test at $\alpha = 0.05$.

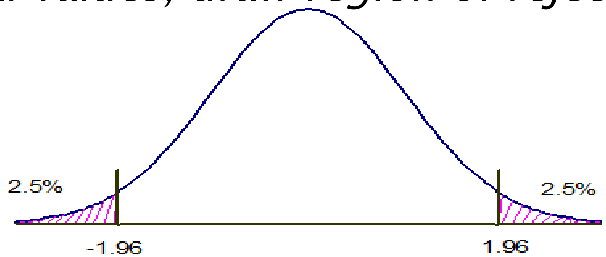
- *Formulate the hypotheses*

  H_0: μ =20.00 mg
  H_1: $\mu \neq$ 20.00 mg

- *Choose the test statistic and find the critical values; draw region of rejection*

Test statistic: Z

At $\alpha = 0.05$, the critical values are ± 1.96.



- *Use the data to get the calculated value of the test statistic*

$$Z = \frac{20.50 - 20.00}{\frac{.80}{\sqrt{64}}} = \frac{.50}{.10} = 5$$

[.80/√.64 = .10 This is the standard error of the mean.]

- *Come to a Conclusion: Reject H_0 or Do Not Reject H_0*

  The computed Z value of 5 is deep in the region of rejection.
  Thus, Reject H_0 at $p < .05$