

Hypothesis

Assumptions or theories that a researcher or manager makes about some characteristic of the population under study.

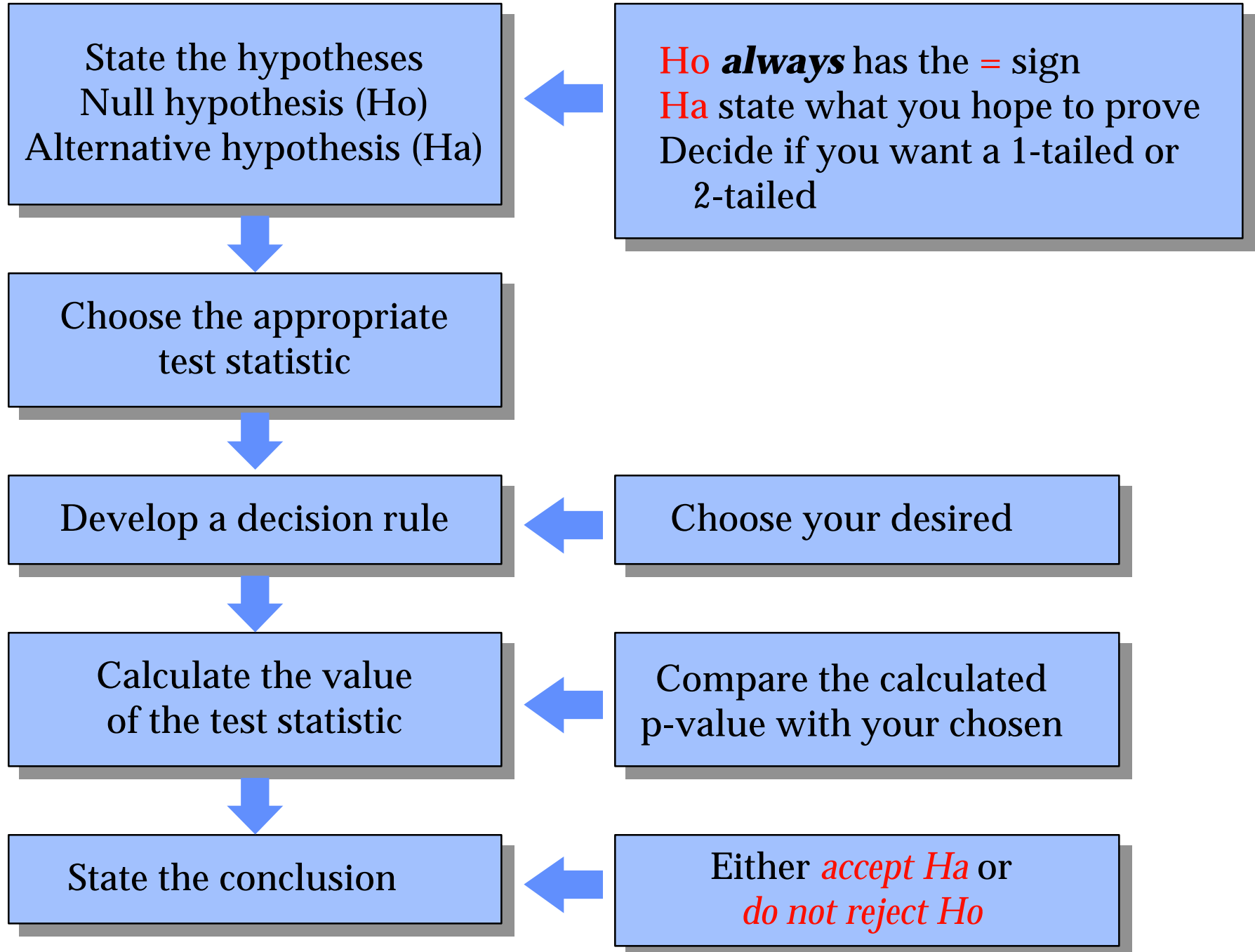
Greek letters

MARKETING RESEARCH STUDIES MEASURE
CHARACTERISTICS OF INTEREST USING
SAMPLES

English letters

Implication? Need to draw inferences about the population under study, using a sample . . . that is all there is to statistical hypothesis testing.

Steps in Hypothesis Testing



The “Essence” of Hypothesis Testing

FACT: A sample statistic is going to differ from a population parameter **just because of** sampling error (only an incredible coincidence would cause the two to be equal!!)

QUESTION: Is the difference between the sample statistic and the population parameter **small enough** to have been caused by sampling error alone??

POSSIBLE
ANSWERS:

Yes  **Do not reject** hypothesis

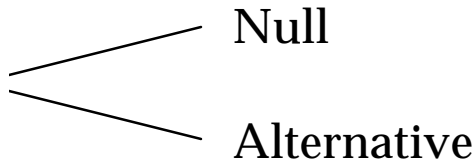
No  **Reject** hypothesis

Don't know 

POSSIBLE
ERRORS IN
HYPOTHESIS
TESTING:

- 1) TYPE I
- 2) TYPE II

A Review of Hypothesis Testing

-- Two kinds of hypotheses 

- Null
- Alternative

-- Null hypothesis A statement that a **population parameter** takes on a particular value (or set of values)

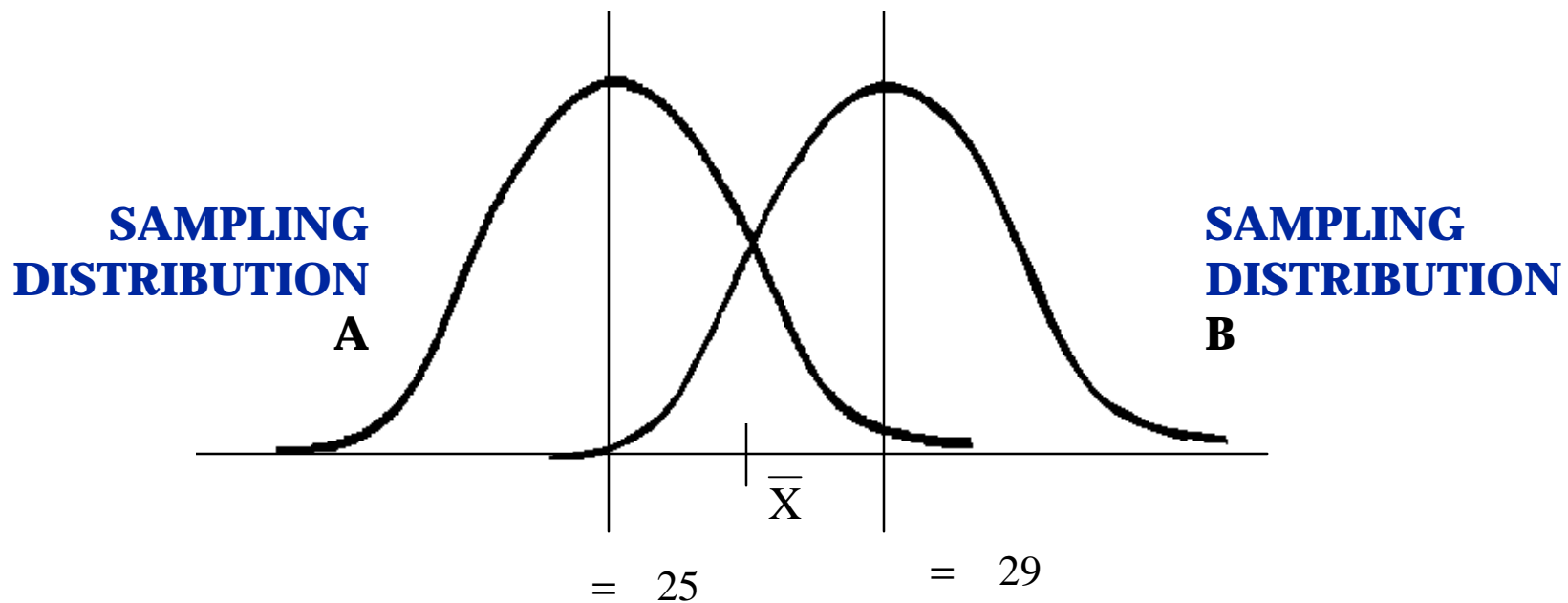
-- It is the null hypothesis that is “evaluated” in hypothesis testing; i.e., it is **rejected** or **not rejected** (a null hypothesis is never accepted)

-- $H_0 : \quad = \quad 25$ **REJECT?**

$H_1 : \quad \neq \quad 25$

-- $H_0 : \quad \leq \quad 25$ **REJECT?**

$H_1 : \quad > \quad 25$



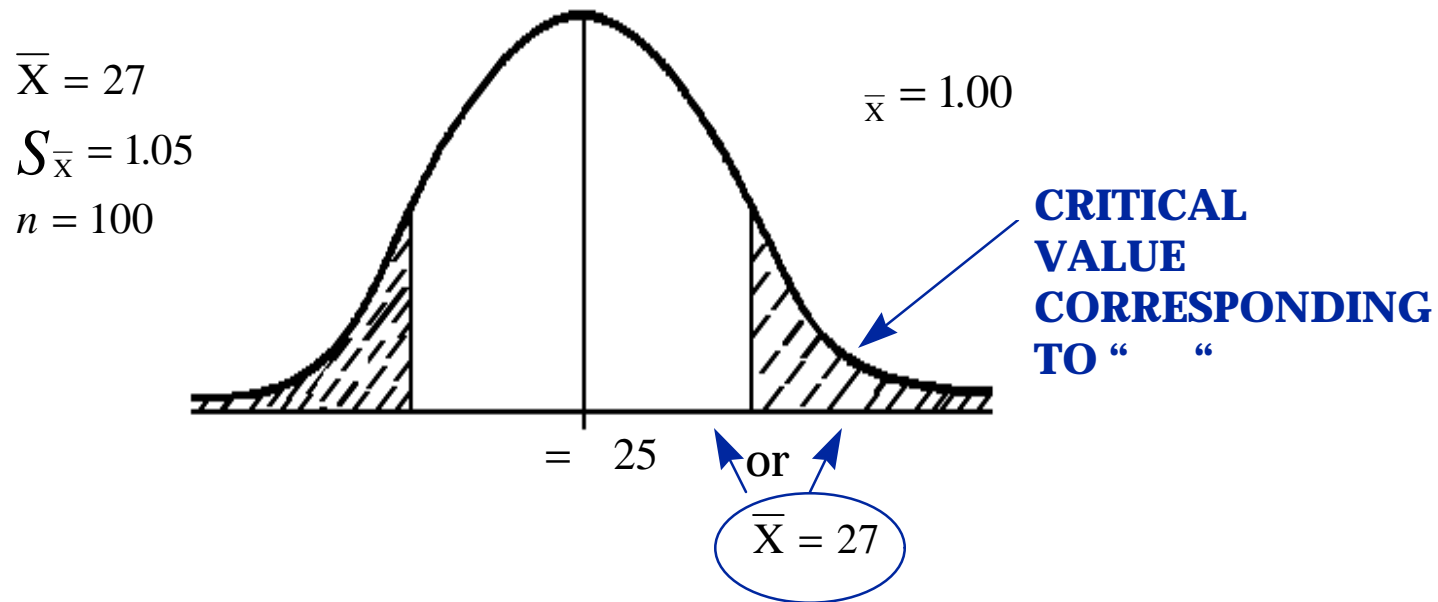
Does \bar{X} belong to “A” or “B”?

- (1) If it belongs to “A”, we do not reject the null hypothesis $H_0 : \quad = 25$
- (2) If it belongs to “B” (or any other sampling distribution for that matter) we reject the null hypothesis $H_0 : \quad = 25$

PROBLEM: How do you tell whether \bar{X} belongs to “A” or “B”?

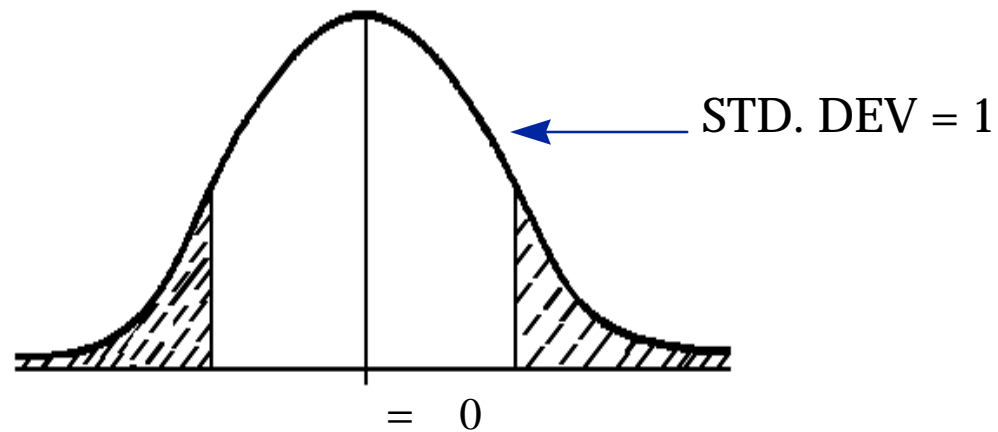
SOLUTION: Use a test (statistical or otherwise)


INTEROCULAR

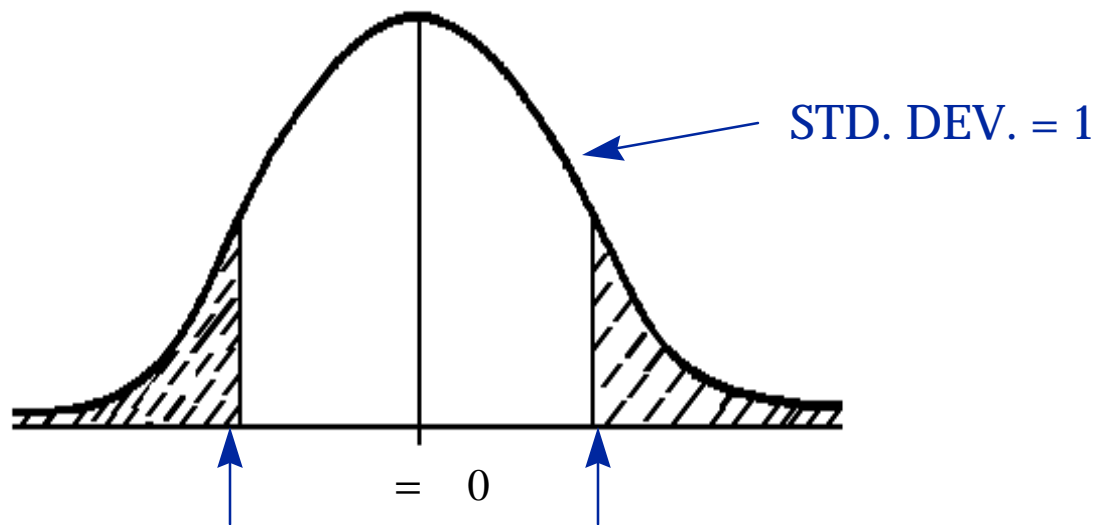


Q: DOES $\bar{X} = 27$ LIE IN THE SHADED OR UNSHADED REGION?

A: DEPENDS ON THE CRITICAL VALUE



1. SET LEVEL, THEREBY FIXING SHADED REGION
2. CALCULATE “Z” OR “t” VALUE



-1.96
(ASSUMES
= .05)

+1.96
(ASSUMES
= .05)

$$Z = \frac{\bar{X} - \mu}{\sigma_{\bar{X}}}$$

or

$$t = \frac{\bar{X} - \mu}{s_{\bar{X}}}$$

$$Z = \frac{26 - 25}{1.00}$$

=

2.00

(WATCH OUT
FOR +/- SIGNS)

STATISTICAL DECISION ?

MR CONCLUSION ? (MUST ALWAYS BE A PRECISELY WORDED STATEMENT IN ENGLISH)