

Hypothesis Testing & TI

Two Populations

Two Population Proportions:

$$H_0 : P_1 = P_2$$

$$H_1 : \begin{cases} P_1 \neq P_2 & \text{Two - Tail Test} \\ P_1 > P_2 & \text{Right - Tail Test} \\ P_1 < P_2 & \text{Left - Tail Test} \end{cases}$$

1. Finding Critical Values Using TI: PRGM > ZVAL > ENTER (Twice)
 2. Finding C.T.S. & P-Value Using TI: STAT > TESTS > 2-PropZTest
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Two Population Means:

$$H_0 : \mu_1 = \mu_2$$

$$H_1 : \begin{cases} \mu_1 \neq \mu_2 & \text{Two - Tail Test} \\ \mu_1 > \mu_2 & \text{Right - Tail Test} \\ \mu_1 < \mu_2 & \text{Left - Tail Test} \end{cases}$$

Case I: When Two Population Standard Deviations σ_1 & σ_2 Are Known.

1. Finding Critical Values Using TI: PRGM > ZVAL > ENTER (Twice)
2. Finding C.T.S. & P-Value Using TI: STAT > TESTS > 2-SampZTest

Case II: When Two Population Standard Deviations σ_1 & σ_2 Are Unknown.

1. Finding Critical Values Using TI: PRGM > TVAL > ENTER (Twice)
2. Finding C.T.S. & P-Value Using TI: STAT > TESTS > 2-SampTTest

If We Assume	Then Pooled	With Degrees of Freedom
$\sigma_1 = \sigma_2$	Yes	$df = n_1 + n_2 - 2$
$\sigma_1 \neq \sigma_2$	No	$df = \text{Smaller Sample Size} - 1$

Two Population Variances:

$$H_0 : \sigma_1^2 = \sigma_2^2$$

$$H_1 : \begin{cases} \sigma_1^2 \neq \sigma_2^2 & \text{Two - Tail Test} \\ \sigma_1^2 > \sigma_2^2 & \text{Right - Tail Test} \\ \sigma_1^2 < \sigma_2^2 & \text{Left - Tail Test} \end{cases}$$

1. Finding Critical Values Using TI:

PRGM > FVAL > ENTER (Twice)

2. Finding C.T.S. & P-Value Using TI:

STAT > TESTS > 2-SampFTest

Two Population Standard Deviations:

$$H_0 : \sigma_1 = \sigma_2$$

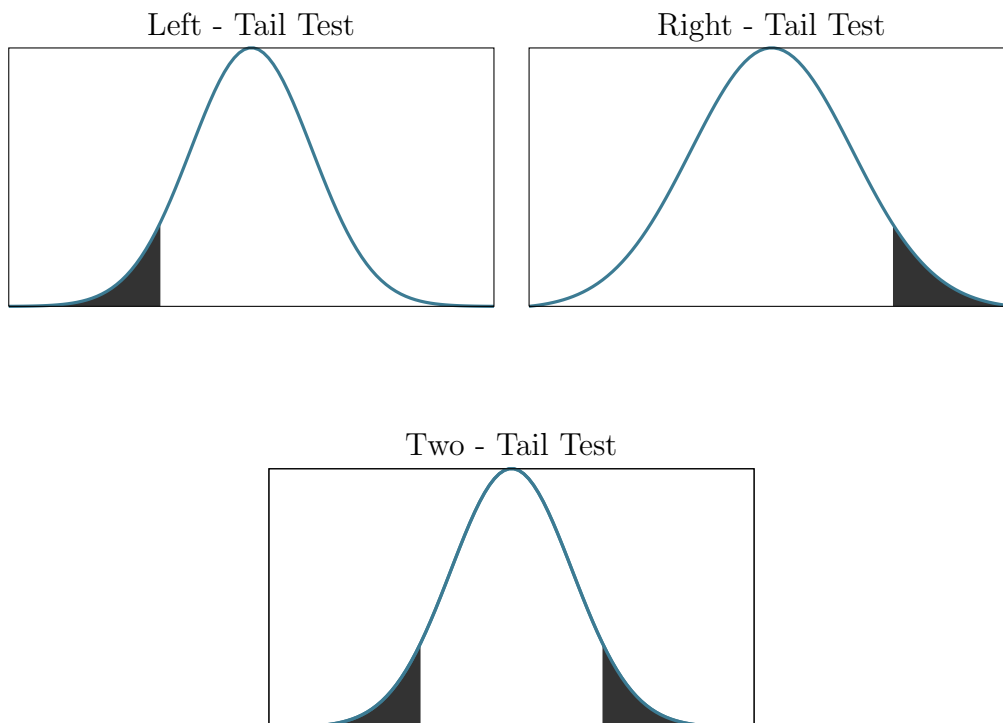
$$H_1 : \begin{cases} \sigma_1 \neq \sigma_2 & \text{Two - Tail Test} \\ \sigma_1 > \sigma_2 & \text{Right - Tail Test} \\ \sigma_1 < \sigma_2 & \text{Left - Tail Test} \end{cases}$$

1. Finding Critical Values Using TI:

PRGM > FVAL > ENTER (Twice)

2. Finding C.T.S. & P-Value Using TI:

STAT > TESTS > 2-SampFTest



When working with two variances or standard deviations, you must use F - distribution plot.