Large Sample z test comparing univariate **mean** to a known or hypothesized value "μ" when the population σ is known.
$z = (\bar{X}-\mu)/(\sigma/\sqrt{n})$
CI: $\bar{X} \pm \text{crit } z\ (\sigma/\sqrt{n})$
ASSCON: Random & Normal (told pop was normal, n > 30, or std norm/box whisker plot looks normal)

Large Sample t test comparing univariate **mean** to a known or hypothesized value "μ" when the population σ is NOT known.
$t = (\bar{X}-\mu)/(s/\sqrt{n})$
CI: $\bar{X} \pm \text{crit } t\ (s/\sqrt{n})$
ASSCON: Random, Normal (told pop was normal, n > 30, or n ≥ 15 & std norm/box whisker plot doesn't look to skewed), n-1 df

Large Sample z test comparing univariate **proportion** to a known or hypothesized value π.
$z = (p-\pi)/\sqrt{((\pi(1-\pi))/n)}$
CI: $p \pm \text{crit } z \sqrt{((\pi(1-\pi))/n)}$
ASSCON: Random & Normal (≥ 10 in each group. Some books say ≥ 5 in each group)

Large Sample z test comparing bivariate **mean** to a known or hypothesized value "μ" when the population σ is known.
$z = (\bar{X}_1-\bar{X}_2)-(\mu_1-\mu_2)/\sqrt{[(\sigma^2_1/n_1)+(\sigma^2_2/n_2)]}$
CI: $\bar{X}_1-\bar{X}_2 \pm \text{crit } z \sqrt{[(\sigma^2_1/n_1)+(\sigma^2_2/n_2)]}$
ASSCON: Random & Normal (told pop was normal, n > 30, or std norm/box whisker plot looks normal) & independent

Large Sample independent t test comparing bivariate **mean** to a known or hypothesized value "μ" when the population σ is NOT known.
$t = (\bar{X}_1-\bar{X}_2) -(\mu_1-\mu_2)/\sqrt{[(s^2_1/n_1)+(s^2_2/n_2)]}$
CI: $\bar{X}_1-\bar{X}_2 \pm \text{crit } t \sqrt{[(s^2_1/n_1)+(s^2_2/n_2)]}$
ASSCON: Random, Normal (told pop was normal, n > 30, or n ≥ 15 & std norm/box whisker plot doesn't look to skewed), independent, df = conservative or use formula for independent t df

Large Sample dependent t test comparing bivariate **mean** to a known or hypothesized value "μ".
$t = \bar{X}_d -(\mu_d)/(s_d/\sqrt{n})$
CI: $\bar{X}_d \pm \text{crit } t\ (s_d/\sqrt{n})$
ASSCON: Random, Normal (told pop was normal, n > 30, or n ≥ 15 & std norm/box whisker plot doesn't look to skewed), dependent, df = n-1

Large Sample z test comparing bivariate **proportion** to a known or hypothesized value π.
$z = (p_1- p_2)-(\pi_1-\pi_2)/\sqrt{(((\pi_1(1-\pi_1))/n_1)+((\pi_2(1-\pi_2))/n_2))}$
CI: $(p_1- p_2) \pm \text{crit } z \sqrt{(((\pi_1(1-\pi_1))/n_1)+((\pi_2(1-\pi_2))/n_2))}$
ASSCON: Random & Normal (≥ 10 in each group. Some books say ≥ 5 in each group)

$\chi^2 = \Sigma((\text{obs-exp})^2/n)$ => **Proportions:** GoF, Homogeneity, Independence df = c-1 or (c-1) X (r – 1)
ASSCON: Random, independent, normal not requirement, but ALL expected values must be ≥ 5

t test for to see if the **regression** is sig differ than 0, same test to see if b (slope) is different than zero.
$t = r/\sqrt{((1-r^2)/(n-2))}$
CI: $r \pm \text{crit } t \sqrt{((1-r^2)/(n-2))}$
ASSCON: Random, Normal (told both *x* & *y* pops norm, n > 30, or n ≥ 15 & std norm/box whisker plot doesn't look to skewed for both *x* & *y* data). df = n-2