2-Sample Significance Tests

STEP	Sample Proportions	Sample Means
State	H_0: $p_1 = p_2$ H_A: p_1 (<, >, ≠) p_2 p_1 = _____ p_2 = _____ $\hat{p}_1$ = ___ $\hat{p}_2$ = ___ α = ___ (0.05 unless stated otherwise)	H_0: $\mu_1 = \mu_2$ H_A: μ_1 (<, >, ≠) μ_2 μ_1 = _____ μ_2 = _____ $\bar{x}_1$ = ___ $\bar{x}_2$ = ___ α = ___ (0.05 unless stated otherwise)
Plan	**Random**: Check to make sure the samples were taken randomly and are independent. **10% condition**: Check to make sure that 10 times our sample is less than the entire population FOR BOTH SAMPLES. **Large Counts**: $n_1\hat{p}_1 \geq 10$ $n_1\hat{q}_1 \geq 10$ $n_2\hat{p}_2 \geq 10$ $n_2\hat{q}_2 \geq 10$ *Because our conditions are met, we will use a 2-sample z-test for difference of two proportions $p_1 - p_2$ (or whatever order you subtracted).*	**Random**: Check to make sure the samples were taken randomly and are independent. **10% condition**: Check to make sure that 10 times our sample is less than the entire population FOR BOTH SAMPLES. **Normal/Large**: $n_1 \geq 30$ $n_2 \geq 30$ If n < 30 for either sample, we must look at a graph of our data: • Rough sketch • No strong skewness • No outliers *Because our conditions are met, we will use a 2-sample t-test for difference of two means $\mu_1 - \mu_2$ (or whatever order you subtracted).*
Do	STAT → TESTS → 6: **2-PropZTest** **x1:** **n1:** **x2:** **n2:** **p1: ≠p2 <p2 >p2** Calculate **test statistic (z) =** **p-value =** DRAW A PICTURE WITH LABELS & SHADING	STAT → TESTS → 0: **2-SampTTest** Choose *Data* or *Stats* depending on the problem **$\bar{x}$1:** **Sx1:** **n1:** **$\bar{x}$2:** **Sx2:** **n2:** **μ1: ≠ μ2 < μ2 > μ2** **Pooled: No Yes** Calculate **df =** ____ DRAW A PICTURE WITH LABELS & SHADING
Conclude **OR**	Because our P-value = ____ is greater than the significance level α = ___, we fail to reject H_0. There is not convincing evidence that (alternative hypothesis). Because our P-value = ____ is less than the significance level α = ___, we reject H_0. There is convincing evidence that (alternative hypothesis).	Because our P-value = ____ is greater than the significance level α = ___, we fail to reject H_0. There is not convincing evidence that (alternative hypothesis). Because our P-value = ____ is less than the significance level α = ___, we reject H_0. There is convincing evidence that (alternative hypothesis).