

Having $\hat{p}$, the Z data is, calculate as follows,

$$\frac{\hat{p} - p}{\sqrt{\frac{\hat{p}(1 - \hat{p})}{n}}}$$

$$Z_{\text{data}} = \frac{0.32 - 0.30}{\sqrt{\frac{0.30(1-0.30)}{100}}} = \frac{0.02}{0.0458} = 0.4367$$

$$Z_{\text{critical}} = \text{Invnorm}(.025) = \pm 1.96$$

Compare Z data with Z critical, Since $-1.96 < Z_{\text{data}} < 1.96$

- Fail to reject H_0
- We don't have enough evidence to support the claim that the proportion of students who have work study is different from 0.30 (30%).

❖ P-Value Method: - To calculate p-value we use:

$$\text{P-Value} = \text{Normalcdf}(0.4367, E99) = 0.3312 \times 2 = 0.6623$$

$$\text{P-value} > \alpha \quad \text{Fail to reject } H_0$$

$$0.6623 > 0.05$$

Since the p-value is more than α then we fail to reject the null hypothesis, therefore, we have not enough evidence that the proportion of students who have work study is different from 0.30 (30%).

❖ Conclusion: -

In conclusion, we fail to reject the null hypothesis; Therefore, there is not enough evidence to conclude that the proportion of CCD students that have work study is different from 30%.