

Answer on Question #41511 – Math - Statistics and Probability

$$\alpha = .05, 1 - \alpha = .95, \frac{\alpha}{2} = .025, z_{.025} = 1.960, n = 350, x = 290,$$

x =number having the characteristic in a random sample of size n .

$$\bar{p} = \frac{x}{n} = \frac{290}{350}$$

Lower limit for 95% confidence interval:

$$\bar{p} - z_{\frac{\alpha}{2}} \sqrt{\frac{\bar{p}(1-\bar{p})}{n}} = \frac{290}{350} - 1.960 \sqrt{\frac{\frac{290}{350}\left(1 - \frac{290}{350}\right)}{350}} \approx 0.79.$$

Upper limit for 95% confidence interval:

$$\bar{p} + z_{\frac{\alpha}{2}} \sqrt{\frac{\bar{p}(1-\bar{p})}{n}} = \frac{290}{350} + 1.960 \sqrt{\frac{\frac{290}{350}\left(1 - \frac{290}{350}\right)}{350}} \approx 0.87.$$

