

The Alien Example



Large-Sample Confidence Interval for Population Proportion

The Problem

A nationwide poll of nearly 1,500 people ... conducted by the syndicated cable television show **Dateline: USA** found that more than 70 percent of those surveyed believe there is intelligent life in the universe, perhaps even in our own Milky Way Galaxy.

What proportion of the entire population agree, at the 95% confidence level?



The Solution

$$p = \hat{p} \pm z_{\alpha/2} \sqrt{\frac{\hat{p}\hat{q}}{n}}$$

$$p = .70 \pm 1.96 \sqrt{\frac{(.70)(.30)}{1500}}$$

$$p = .70 \pm (1.96)(.012)$$

$$p = .70 \pm .023$$