

8.56

Is America's romance with movies on the wane? In a Gallup Poll⁵ of $n = 800$ randomly chosen adults, 45% indicated that movies were getting better whereas 43% indicated that movies were getting worse.

- a Find a 98% confidence interval for p , the overall proportion of adults who say that movies are getting better.
- b Does the interval include the value $p = .50$? Do you think that a majority of adults say that movies are getting better?

- 8.97** Suppose that S^2 is the sample variance based on a sample of size n from a normal population with unknown mean and variance. Derive a $100(1 - \alpha)\%$
- a upper confidence bound for σ^2 .
 - b lower confidence bound for σ^2 .
- 8.98** Given a random sample of size n from a normal population with unknown mean and variance, we developed a confidence interval for the population variance σ^2 in this section. What is the formula for a confidence interval for the population standard deviation σ ?
- 8.99** In Exercise 8.97, you derived upper and lower confidence bounds, each with confidence coefficient $1 - \alpha$, for σ^2 . How would you construct a $100(1 - \alpha)\%$
- a upper confidence bound for σ ?
 - b lower confidence bound for σ ?