

Homework 12

Name _____

1. According to a USA Today/Gallup poll, (Peterson 1997), 57% of 496 teens who date have reported dating somebody of another race at some point.

a.) What is the predicted population proportion (Hint: this is an easy question!)

b.) What is the standard error for the sample proportion?

c.) Using the Empirical rule, construct an interval that you would expect 95% of the sample proportions to fall (Empirical Rule- 95% of the observations are within 2 standard errors of the mean of the sample proportions).

d.) Using the sample proportion and the margin of error formula, $ME = \frac{1}{\sqrt{n}}$, construct an interval that is likely to capture the true population proportion.

2. A study at Penn State University asked 189 students the question "What's the fastest you have ever driven a car? ____mph." (Utts and Heckard, pg. 2) From the sample, the average top speed was 97.15 mph, with a standard deviation of 18.47 mph.

a.) What is the predicted population mean (Hint: easy!)?

b.) What is the predicted population standard deviation (Hint: easy!)?

c.) What is the standard error for the sample mean?

d.) What is the probability that a random student will have driven faster than 100 mph?

e.) Using the normal distribution as an approximation to the Student t distribution, what is the probability that a random sample of 189 college students will have a sample mean of at least 100 mph?