

Unit 5 Progress Check: FRQ

1. Show all your work. Indicate clearly the methods you use, because you will be scored on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

I suggest you look pp. 621-627 in your textbook

Researchers are studying two populations of sea turtles. In population D, 30 percent of the turtles have a shell length greater than 2 feet. In population E, 20 percent of the turtles have a shell length greater than 2 feet. From a random sample of 40 turtles selected from D, 15 had a shell length greater than 2 feet. From a random sample of 60 turtles selected from E, 11 had a shell length greater than 2 feet. Let \hat{p}_D represent the sample proportion for D, and let \hat{p}_E represent the sample proportion for E.

- (a) What is the value of the difference $\hat{p}_D - \hat{p}_E$? Show your work.



Please respond on separate paper, following directions from your teacher.

- (b) What are the mean and standard deviation of the sampling distribution of the difference in sample proportions $\hat{p}_D - \hat{p}_E$? Show your work and label each value.



Please respond on separate paper, following directions from your teacher.

- (c) Can it be assumed that the sampling distribution of the difference of the sample proportions $\hat{p}_D - \hat{p}_E$ is approximately normal? Justify your answer.



Please respond on separate paper, following directions from your teacher.

- (d) Consider your answer in part (a). What is the probability that $\hat{p}_D - \hat{p}_E$ is greater than the value found in part (a)? Show your work.



Please respond on separate paper, following directions from your teacher.