

You may work with one partner on this assignment, submitting one report with both names, provided that both students contribute substantially to the work. Word-processed reports are preferred to hand-written ones. Please copy/paste relevant computer output into your report as appropriate.

Pet CPR?

A national survey conducted on October 1-5, 2009 asked pet owners whether they would perform CPR on their pet in the event of a medical emergency. In the sample of 1116 pet owners, 58% said that they are at least somewhat likely to perform CPR on their pet.

- a) Use this information to determine a 90% confidence interval for the proportion of all American pet owners who are at least somewhat likely to perform CPR on their pet. Be sure to check technical conditions for the procedure and also interpret what the interval reveals.
- b) State the appropriate null and alternative hypotheses, in symbols and in words, for testing whether the proportion of dog owners who would perform CPR on their pet is different from the proportion of cat owners who would perform CPR on their pet.

The article that I read reports that 63% of dog owners and 53% of cat owners in the sample said that they would perform CPR on their pet. But the article does not reveal the numbers of dog and cat owners in the sample. Suppose for now that there were 500 dog owners and 500 cat owners.

- c) Verify that the technical conditions for a z -test are satisfied.
- d) Calculate the test statistic and p -value of the test. (Feel free to use Minitab.) Also indicate the smallest significance level at which you would reject the null hypothesis, and summarize your conclusion from this test.
- e) Determine a 90% confidence interval for the difference in population proportions of dog vs. cat owners who would perform CPR on their pet. Also write a sentence interpreting what this interval reveals.
- f) Is your test conclusion consistent with the confidence interval? Explain.

Now suppose that the sample sizes had been only 100 dog owners and 100 cat owners, with the same sample proportions of .63 and .53, respectively, answering that they would perform CPR on their pet.

- g) Repeat questions d) and e) for this scenario.
- h) Summarize how the change in sample size affected the significance test and confidence interval. Also explain why it makes sense that these changed as they did.

