

Practice Quiz 8

Statistics 200
Spring 2010
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1. (10 pts.) Number of calves sired by a sample of 10 captive Beluga whales had mean 1.5. Assume population standard deviation to be 1.4.
 - (a) Set up a 95% confidence interval for the mean number of calves sired by all captive Belugas.

 - (b) Based on your confidence interval, is 3 a plausible value for mean number of calves sired?
 - (c) Suppose someone wants to test a claim that the mean number of calves sired is less than 3. State the appropriate null and alternative hypotheses.

 - (d) Calculate the standardized test statistic. _____
 - (e) Our test statistic is
 - (i) not large (ii) large (iii) borderline.
 - (f) The p -value is (i) not small (ii) small (iii) borderline.
 - (g) Which one of these is the correct conclusion?
 - i. Population mean number of calves sired is proven to be 3.
 - ii. Population mean number of calves sired is proven to be 1.5.
 - iii. Population mean number of calves sired may be 3.
 - iv. We have proven that population mean number of calves sired is less than 3.
 - v. We have compelling evidence that population mean number of calves sired is less than 3.
 - vi. Results are inconclusive.
 - (h) If the data were used to test a claim that mean number of calves sired *differs* from 3, the p -value would be
 - (i) half (ii) twice (iii) the same as the one for the test described above.
 - (i) Now suppose that 1.4 is the *sample* standard deviation; use the fact that the t multiplier for 9 degrees of freedom and 95% confidence is 2.26 to set up a confidence interval for population mean number of calves sired.
 - (j) The interval is narrower when we use the (i) z (ii) t multiplier.