

Confidence Intervals for Means

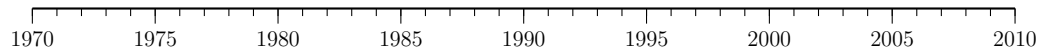
Math 121 - Workshop

1. In my office I have a bag of 20 quarters. These are the years when the quarters were minted:

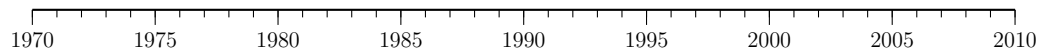
1972 1977 1977 1979 1982 1985 1987 1990 1990 1990
1991 1991 1995 1996 1998 2004 2006 2006 2006 2007

The average year is $\bar{x} = 1990.6$ and the standard deviation is $s = 10.8$ years.

- (a) Find the five number summary for this data, then use the number line below to draw a box-and-whisker plot.



- (b) Make a 95% confidence interval for the average mint date of all quarters in circulation. Draw the confidence interval using the number line below. Why is the confidence interval so much smaller than the box-and-whisker plot in part (a)?



- (c) Make a histogram of the quarters' mint dates to see if they are approximately normal.

- (d) The quarters in my office have just been sitting in my desk drawer since 2008. Explain why this means that we shouldn't trust our 95% confidence interval for the mean mint date of all quarters currently in circulation.