Investigation 6: Game show prices? (assigned on Mon Nov 9; due on Thur Nov 13)
You may work with in a group of as many as three students on this assignment, handing in one report with all names, provided that you all contribute to the work. Word-processed reports are preferred to hand-written ones. Integrate computer output into your report as appropriate.

The Minitab worksheet gameshow.mtw (available from our course webpage) contains data on the prices of a sample of 208 prizes used on The Price is Right game show, during the contestant selection phase of the game (when contestants bid on prizes to see who comes closest). These data are the actual prices of those prizes.

a) Produce (and submit) a histogram of the distribution of these prices. Comment on what this histogram reveals about the distribution. [Be sure to relate your comments to the context, and refer to the shape, center, variability, and outliers (if any).]

b) Report the sample mean and standard deviation of these prices, along with appropriate symbols to represent them.

c) Use the sample data to test whether the population mean price (among all prizes used on the contestant selection phase of the show) exceeds $1000. Report the hypotheses (in symbols), test statistic, and p-value. Also report whether the sample result is statistically significant at the .01 level, and summarize your conclusion.

d) Determine the critical value $t^*$ corresponding to 99% confidence for the population mean price.

e) Produce a 99% confidence interval for the population mean price.

f) Comment on whether the technical conditions that underlie the validity of these $t$-procedures appear to be met. Explain.

g) Determine how many and what proportion of these 208 prizes have a price that falls within the confidence interval in (e).

h) Should this proportion (in g) be close to .99? Explain why or why not.