STAT 301 HW14 due Wed Oct 28

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.

Blood Donations?

Blood donations from volunteers serve a crucial role in the nation's health care system. Have Americans become any more or less generous about donating blood in recent years? To investigate this question we can analyze data from the General Social Survey, which is a national survey conducted every two years on a random sample of adult Americans. Data from the 2002 and 2004 surveys are summarized in the following table:

	2002	2004
Donated blood in previous 12 months	210	230
Did not donate blood in previous 12 months	1152	1106
Total	1362	1336

a) For each year, calculate the proportion of adult Americans who donated blood in the previous 12 months. Use appropriate symbols to represent them. Also calculate the (absolute) difference between these proportions.

b) State the appropriate null and alternative hypotheses, in words and in symbols, to address the research question in the first paragraph.

c) Conduct a Minitab simulation to approximate a p-value for this significance test. Be sure to report the appropriate parameter values (n and π) for the binomial distribution that you simulate from. Also submit a well-labeled histogram of your simulation results. Finally explain how you calculate the approximate p-value and report its value.

d) Check the conditions for whether the normal approximation is appropriate for this significance test.

e) Calculate the z-test statistic and p-value based on the normal distribution.

f) Summarize your conclusion from these analyses, with regard to the research question in the first paragraph. Also explain the reasoning process that leads to your conclusion.