

Name: _____ 11/6/2019
Math 150-E Quiz 3

Please put away all papers and electronic devices except for a calculator. Show enough work that it is clear how you arrived at your answer. Box/circle your final answers. Good luck!

1. (8 points) The Consumer Price Index for the year 1990 is 130.7 and for the year 2010 is 218.1. If someone needed \$35,000 to maintain a certain standard of living in 1990, how much would be needed to maintain the same standard of living in 2010?

2. In the year 2000, a ride on the NYC subway cost \$1.50. Today, a ride costs \$2.75.
 - (a) (8 points) Find the percent change in the price of a subway ride from 2000 to today.

 - (b) (8 points) The Consumer price index (CPI) was 172.2 in the year 2000, and it is 256.8 today. Using this information, convert the cost of \$1.50 in 2000-dollars to an equivalent cost in today's dollars.

 - (c) (8 points) Using your answer to part (b), recalculate the percent change in the price of a subway ride from 2000 to today, adjusted for inflation.

3. A double-blind drug versus placebo study of 103 patients suffering from tinnitus (the perception of ringing in the ears) demonstrated the effectiveness of ginkgo biloba extract. The ginkgo treatment improved the condition of all the tinnitus patients.

(a) (6 points) Is this study observational or experimental?

(b) (6 points) Identify the treatment group and the control group.

(c) (8 points) Explain what a “placebo” is, and why the researchers might have chosen to use one.

(d) (8 points) Explain what “double blind” means, and why the researchers might have chosen this method.

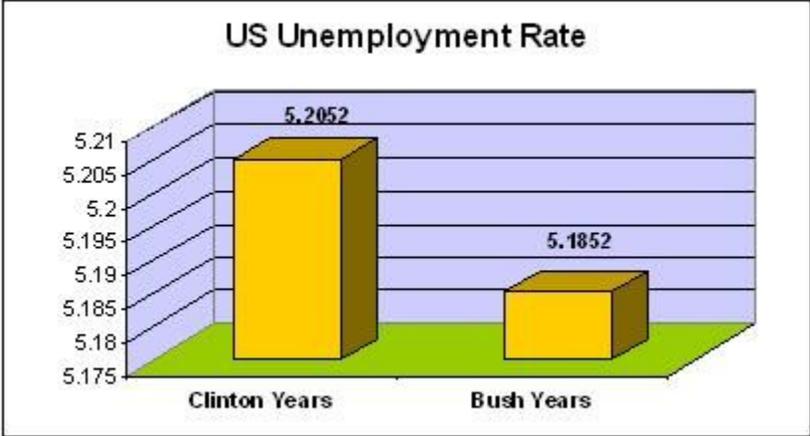
4. Based solely on the information given, do you have reason to question the results of the following hypothetical studies? Explain your reasoning.

(a) (8 points) A study financed by a major pharmaceutical company is intended to determine whether its new cholesterol drug is more effective than similar drugs of competing companies.

(b) (8 points) A TV talk show host asks the TV audience, "Do you support new national mileage standards for automobiles?" and asks people to vote by telephone at a toll-free number.

(c) (8 points) Researchers design five survey questions to determine whether Norwegian citizens are happier than American citizens.

5. The following figure compares the average US unemployment rate while Bill Clinton was president to the average US unemployment rate while George W. Bush was president.



(a) (8 points) Identify any misleading aspects of the display.

(b) (8 points) Redraw the display in a fairer way. (Your display does not have to be 3-dimensional.)