1. (2 points) The total purchase price for 100 shares of stock purchased on E*Trade (an internet stock brokerage firm) is:

total purchase price = 100*(market price) + 19.95

Which statement below is correct about the distribution of purchase prices of 100 shares of stock after E*Trade has added its commission (sales fee) of $19.95

A. The mean of the distribution will change, but the median will remain the same
B. The range will remain the same but the standard deviation will change.
C. The mean and standard deviation will change, but the median will remain the same.
(D.) The mean and median will change, and the interquartile range will also change.
E. All of the above are false.

2.(5 points) Explain how the relation between the mean and the median provides information about the symmetry or skewness (asymmetry) of the distribution (pattern) of any histogram of data. BE BRIEF.

1) Identify that in symmetrical distribution mean = median
2) Identify that in distribution w/a long right hand tail mean > median
3) Identify that in distribution w/a long left hand tail mean < median

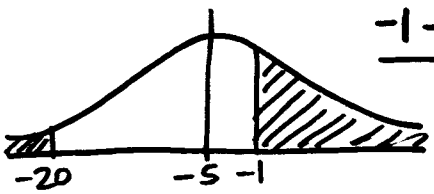
3.(2 points each part) Identify each study as being either observational or experimental by checking off the appropriate column.

Observational	Experimental	
X		a. Psychiatrists examined some randomly selected prison records. They found inmates whose mothers smoked during pregnancy were 10 times more likely to be incarcerated for murder.
X		b. A researcher finds that people who are more hostile have higher rates of heart disease than people who are less hostile.
	X	c. Subjects are assigned to one of four groups. Each group is placed on one of four special diets -- a low fat diet, a high-fat diet, a low calorie diet, and a regular diet. After six months, the blood pressures of the groups are compared to see if diet has any effect on blood pressure.
	X	d. Human subjects were randomized into two groups. One group was given an herbal remedy, the other group a placebo. After six months, the number of colds or flus each group had were compared.
X		e. A researcher stood at a randomly selected busy intersection to see if the color of an automobile a person drives is related to running red lights.

4. Seafood (e.g. clams, lobster) must be stored at temperatures between -20 and -1 degrees Celsius to remain usable Suppose the freezer units belonging to a large grocery store chain (like Ralph's or Vons) produce storage temperatures that are normally distributed with a mean of -5 degrees Celsius and a standard deviation of 10 degrees Celsius. Please answer the following questions about the seafood being sold to customers.

   a. What percentage of freezers are too warm or too cold to properly store seafood? (3 points)

      A. 28.0%
      B. 34.1%
      C. 41.1%
      D. 58.9%
      E. none of the above



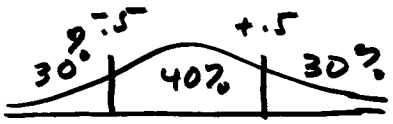
$\frac{-1-(-5)}{10} = \frac{+4}{10} = +.4$

$\frac{-20-(-5)}{10} = -1.5$

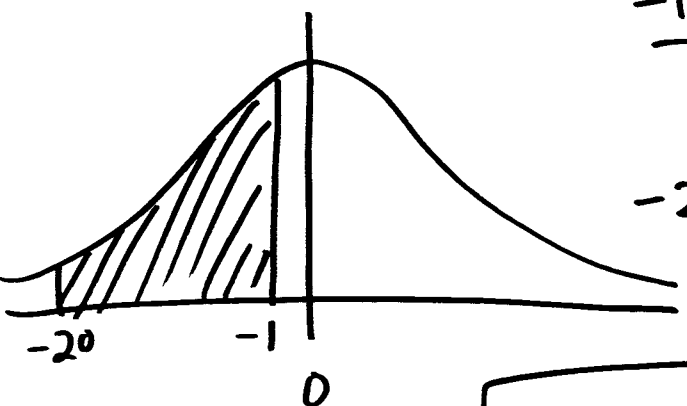
   b. What values of freezer temperatures represent the 30th and 70th percentiles for this distribution? (2 points each percentile value, 4 points total) SHOW YOUR WORK.

30th percentile $-.50 = \frac{x-(-5)}{10}$ solve for $x = -10$

70th percentile $+.50 = \frac{x-(-5)}{10}$ solve for $x = 0$



   c. Suppose the thermometers used to measure the temperature of the freezer units are inaccurate and actually all of the freezer units are 5 degrees warmer than reported above. What percentage of their freezers are capable of properly storing ice cream now? (3 points)



$\frac{-1-(0)}{10} = -.1 = 7.97\%$ area

$\frac{-20-0}{10} = -2.0 = 95.45\%$ area

$\frac{95.45-7.97}{2} = 43.7\%$

5. Here is unemployment data from 10 countries:

Country	Unemployment Rate
Australia	8.7
Japan	2.2
Great Britain	22.4
Germany	10
Sweden	7
Ireland	11.1
Italy	42.1
Japan	2.1
Canada	9.9
United States	4.9

a. Find the mean unemployment rate (2 points)

A. 8.3
B. 9.05
C. 9.3
D. 12.0
E. None of the above

b.Find the median unemployment rate (3 points)

A. 7
B. 9.05
C. 9.3
D. 12.0
E. None of the above

2.1, 2.2, 4.9, 7, 8.7, | 9.9, 10, 11.1, 22.4, 42.1

$9.3 = \frac{8.7+9.9}{2}$

c.Find the standard deviation of unemployment rate (4 points)

A. less than 10.0
B. 11.4
C. 12.0
D. greater than 15
E. None of the above

~~d. Find the Z score for the United States using information from the table above, the standard~~ normal table, ~~and from parts a and c. (4 points)~~