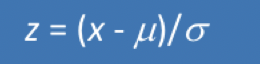
QUESTIONS:

1. (1 point) Given that z is a standard normal random variable, compute the following probabilities.

Z- score: if the z-score is positive, meaning that the score is above the mean value. if the z-



a) P(z ≤ −1.0)

b) P(z ≥ −1)

2. (1 point) Given that z is a standard normal random variable, find z for each situation.

a) The area to the left of z is .2119.

b) The area between −z and z is .9030.

3. (2 point) The U.S. Energy Information Administration (US EIA) reported that the average price for a gallon of regular gasoline is $2.94. The US EIA updates its estimates of average gas prices on a weekly basis. Assume the standard deviation is $.25 for the price of a gallon of regular gasoline and recommend the appropriate sample size for the US EIA to use if they wish to report each of the following margins of error at 95% confidence.

a) The desired margin of error is $.10.

b) The desired margin of error is $.07.

c) The desired margin of error is $.05.

4. (1 point) A simple random sample of 50 items from a population with sigma = 6 resulted in a sample mean of 32.

a) Provide a 90% confidence interval for the population mean.

b) Provide a 95% confidence interval for the population mean.

c) Provide a 99% confidence interval for the population mean.

5. (2point) A simple random sample of 400 individuals provides 100 Yes responses.

a) What is the point estimate of the proportion of the population that would provide Yes responses?

b) What is your estimate of the standard error of the proportion, sigma\_p?

c) Compute the 95% confidence interval for the population proportion.

6. (1 point) The random variable x is known to be uniformly distributed between 10 and 20.

a) Show the graph of the probability density function.

b) Compute P(x < 15).

c) Compute P(12 ≤ x ≤ 18).

d) Compute E(x).

e) Compute V ar(x).

7. (2 point) Consider the following hypothesis test:

H0: Mu >= 20

Ha: Mu < 20

a) A sample of 50 provided a sample mean of 19.4. The population standard deviation is 2.

b) Compute the value of the test statistic.

c) What is the p-value?

d) Using alpha = .05, what is your conclusion?

e) What is the rejection rule using the critical value? What is your conclusion?