

A.P. Statistics
Assignment 1.11

As always, briefly explain your thinking in your responses. Be sure to convince me that you understand.

1. Suppose that taxis in New York are driven an average of 60,000 miles per year with a standard deviation of 11,000 miles. Assume that the mileage driven for a year is normally distributed.

(a) How many miles will the middle 95% of taxis have driven in one year?

<type answer here>

(b) This is a fill in the blank question. Almost all taxis will have been driven between _____ and _____ miles in one year.

<explain answer here>

2. IQ scores for adults aged 20 to 34 years are normally distributed according to $N(110,25)$. Use the empirical rule to answer the following:

(a) Approximately what percent of people in this group have scores below 110?

<type answer here>

(b) About what percent of people in this group scored above 160?

<type answer here>

(c) In what range do the middle 95% of people in this group score on the test?

<type answer here>

3. The length of human pregnancies varies according to an approximately normal distribution with a mean of 266 days and *variance* of 256 days.

(a) How short are the shortest 2.5% of all pregnancies?

<type answer here>

(b) How long are the longest 2.5% of all pregnancies?

<type answer here>

Multiple choice – highlight the best response.

4. In Tucson, Arizona, the air pollution index averages 62.5 during the year with a standard deviation of 18. Assuming normality, the index falls within what interval 95% of the time?

- (a) (8.5, 116.5)
- (b) (26.5, 98.5)
- (c) (44.5, 80.5)
- (d) (45.4, 79.6)
- (e) Not enough information given.

5. Which of the following statements are true?

- I. The area under a normal curve is always equal to 1, no matter what the mean and standard deviation are.
- II. The smaller the standard deviation of a normal curve is, the higher and narrower the graph.
- III. Normal curves with different means are centered around different numbers.

- (a) I and II
- (b) I and III
- (c) II and III
- (d) I, II, and III
- (e) None of the above.