"Normal" Health

The following table lists base-line characteristics of two randomly selected groups of men and women. The exercise group consisted of individuals who participated in vigorous exercise for at least 20 minutes, 3 times a week, for at least the last 6 months. The no exercise group consisted of individuals who had not engaged in any type of consistent, vigorous exercise over the last 6 months. Ages are in years, weights are in kilograms, heights are in meters, and heart rates are in beats per minute. *Show work to support each solution. For percent questions (#2, #5), round to the nearest hundredth of a percent. For "subject" questions (#3, #9), round to the nearest person. For confidence interval questions (#6, #7, #10), round to the nearest tenth.*

Characteristic	Exercise (n = 35)		No Exercise (n = 35)	
	Mean	St. Dev.	Mean	St. Dev.
Age	57	10	58	11
Weight	97	16	95	16
Height	1.77	.05	1.75	.08
Heart Rate	73	9	74	9
Systolic Blood Pressure	137	10	139	15
Diastolic Blood Pressure	88	7	88	12
Body Mass Index	33	5.8	31	4.4

[Note: The body mass index is the weight in kilograms divided by the square of the height in meters.]

Choose the category which more closely fits your exercise habits. _____

1.   Heights are given in meters. For example, 1.77 meters is equivalent to 177 cm. Since 2.54 cm equals 1 inch, this height is equivalent to 69.7 inches or around 5 ft 9 $^3/_4$ in. Convert your height to meters. Round to the nearest hundredth of a meter. _____

2.   Using $\overline{X}$ for μ in the formula, what percent of the subjects in your category were likely shorter than you?

3.   Use the fact that 1 kg = 2.20 lb to convert your weight in pounds to kilograms. _____ How many subjects in your category were likely heavier in weight than you?

4.   Compute your body mass index. Round to the nearest tenth.

5.   What percent of the 35 subjects in your category likely have a BMI less than yours? This is your percentile ranking. Use $\bar{X}$ and s as point estimates for μ and σ in the formula.

6.   Find 95% confidence intervals for the population mean body mass index for all adults in the exercise group and for all adults in the no exercise group.

7.   Find 99% confidence intervals for the population mean heart rate for all adults in the exercise group and for all adults in the no exercise group.

8.   Find your heart rate (pulse). _____

       Does your heart rate fall within 2 standard deviations of the mean? _____ Within one standard deviation? _____

       Calculate the z-score for your heart rate (using $\bar{X}$ and s as point estimates for μ and σ in the formula). Round to the nearest hundredth.

9.   How many of the 70 subjects' heart rates likely fell within one standard deviation of the mean? _____ Within two standard deviations? _____ Use the Empirical Rule.

10.   Find 90% confidence intervals for the population mean diastolic and systolic blood pressure readings for all adults in your category.