Names:												
Normal Distribution: Normal Distribution Lab I												
Student Learning	g Outcome:											
	ent will com ne if Terry Vo		· ·			cal distributi	on to					
Note: Round the answers to 2 place		quencies an	d probabilit	ies to 4 deci	mal places.	Carry all otl	ner decimal					
Collect the Data												
 Use the data from Terri Vogel's Log Book. (Look in the Table of Contents Appenaix Data Sets) Use a Stratified Sampling Method by Lap (Races 1 – 20) and a random number generator to pick 6 lap times from each stratum. Record the lap times below for Laps 2 – 7. 												

Class Time:

2. Construct a histogram. Make 5 - 6 intervals. Sketch the graph using a ruler and pencil. Scale the axes.

Frequency

Lap Time

3. Calculate the following

a.
$$\overline{x} = \underline{\hspace{1cm}}$$

4. Draw a smooth curve through the tops of the bars of the histogram. Use 1–2 complete sentences to describe the general shape of the curve. (Keep it simple. Does the graph go straight across, does it have a V shape, does it have a hump in the middle or at either end, etc.?)

Analyze the Distribution

Using your sample mean, sample standard deviation, and histogram to help, what was the approximate theoretical distribution of the data from "Collect the Data?"

- X ~ _____
- How does the histogram help you arrive at the approximate distribution?

Describe the Data

I Ising the	data in	"Collect the	Data"	(Hint:	order the	datal	١.
using the	uata III	Conect the	Data	(IIII III III III III III III III III	oruer the	uala	١.

Remember: IQR = Q3 - Q1

- The IQR goes from _____ to ____.
- IQR = _____.
- The 15th percentile is ______.
- The 85th percentile is _____.
- The median is _____.
- The empirical probability that a randomly chosen lap time is more than 130 seconds = _____.
- Explain the meaning the 85th percentile of this data.

Theoretical Distribution

Using the theoretical distribution in "Analyze the Distribution":

- The IQR goes from _____ to _____.
- IQR = _____.
- The 15th percentile is _____.
- The 85th percentile is _____.
- The median is .
- The probability that a randomly chosen lap time is more than 130 seconds = _____.
- Explain the meaning the 85th percentile of this distribution.

Discussion Questions

Do the data from "Collect the data" give a close approximation to the theoretical distribution in "Analyze the Data?" In complete sentences and comparing the results in "Describe the Data" and "Theoretical Distribution", explain why or why not.