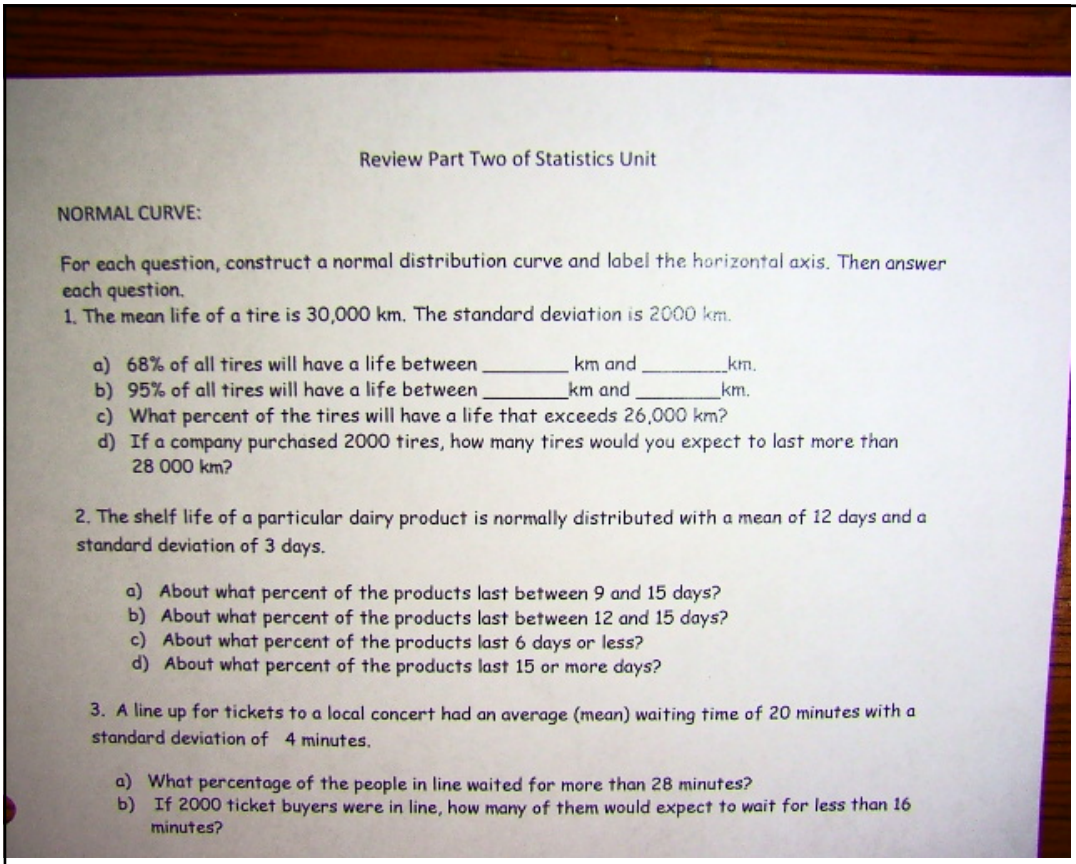

Review Part Two of Statistics Unit

NORMAL CURVE:

For each question, construct a normal distribution curve and label the horizontal axis. Then answer each question.

1. The mean life of a tire is 30,000 km. The standard deviation is 2000 km.

a) 68% of all tires will have a life between _____ km and _____km.
b) 95% of all tires will have a life between _____km and _____km.
c) What percent of the tires will have a life that exceeds 26,000 km?
d) If a company purchased 2000 tires, how many tires would you expect to last more than 28 000 km?

2. The shelf life of a particular dairy product is normally distributed with a mean of 12 days and a standard deviation of 3 days.

a) About what percent of the products last between 9 and 15 days?
b) About what percent of the products last between 12 and 15 days?
c) About what percent of the products last 6 days or less?
d) About what percent of the products last 15 or more days?

3. A line up for tickets to a local concert had an average (mean) waiting time of 20 minutes with a standard deviation of 4 minutes.

a) What percentage of the people in line waited for more than 28 minutes?
b) If 2000 ticket buyers were in line, how many of them would expect to wait for less than 16 minutes?

Oct 1-10:31 AM

STANDARD DEVIATION:

4. Use the following SAMPLE data to answer the questions with the graphing calculator.

Masses of students (in kg):	70, 52, 68, 60, 59, 72, 55, 58, 66, 69, 72, 61.

a) Mean:____
b) Standard Deviation:____
c) How would the data change if the standard deviation is equal to zero?
d) What is the meaning of standard deviation?

CONFIDENCE INTERVALS:

5. We have IQ test scores of 31 seventh-grade girls in a Midwest school district. We have calculated that sample mean is 105.84 and the standard deviation is 14.27.

(a) Give a 99% confidence interval for the average score in the population.

b) Identify the following:

i) Confidence interval: _____
ii) Margin of error: _____
iii) Point estimate:_____
iv) Confidence level:_____

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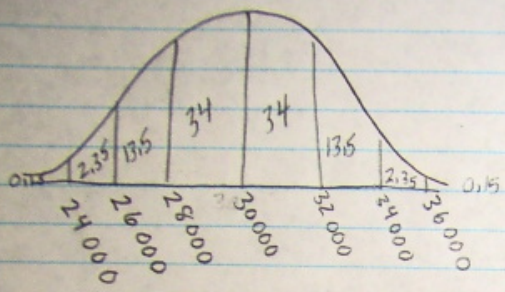
1.



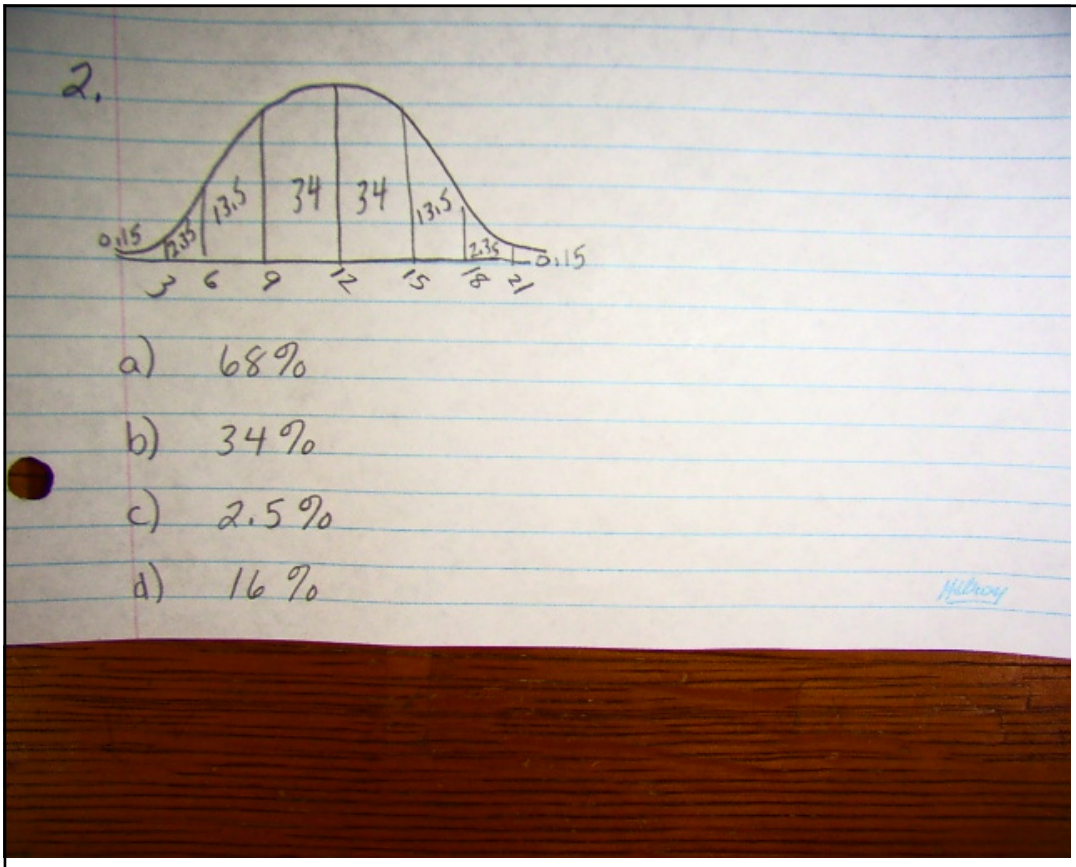
a) 28000 and 32000

b) 26000 and 34000

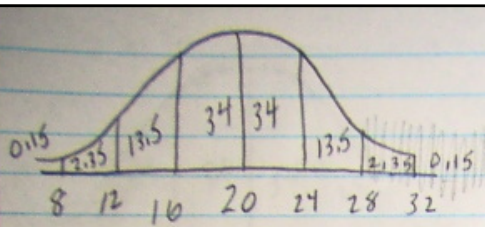
c) 97.5 %

d) 84 %

2000 x 0.84
1680 tires


2.
0.15
2.35
13.5
34
34
13.5
2.35
0.15
3
6
9
12
15
18
21
a) 68%
b) 34%
c) 2.5%
d) 16%

3.



a) 2.35 + 0.15 = 2.50 2.5%

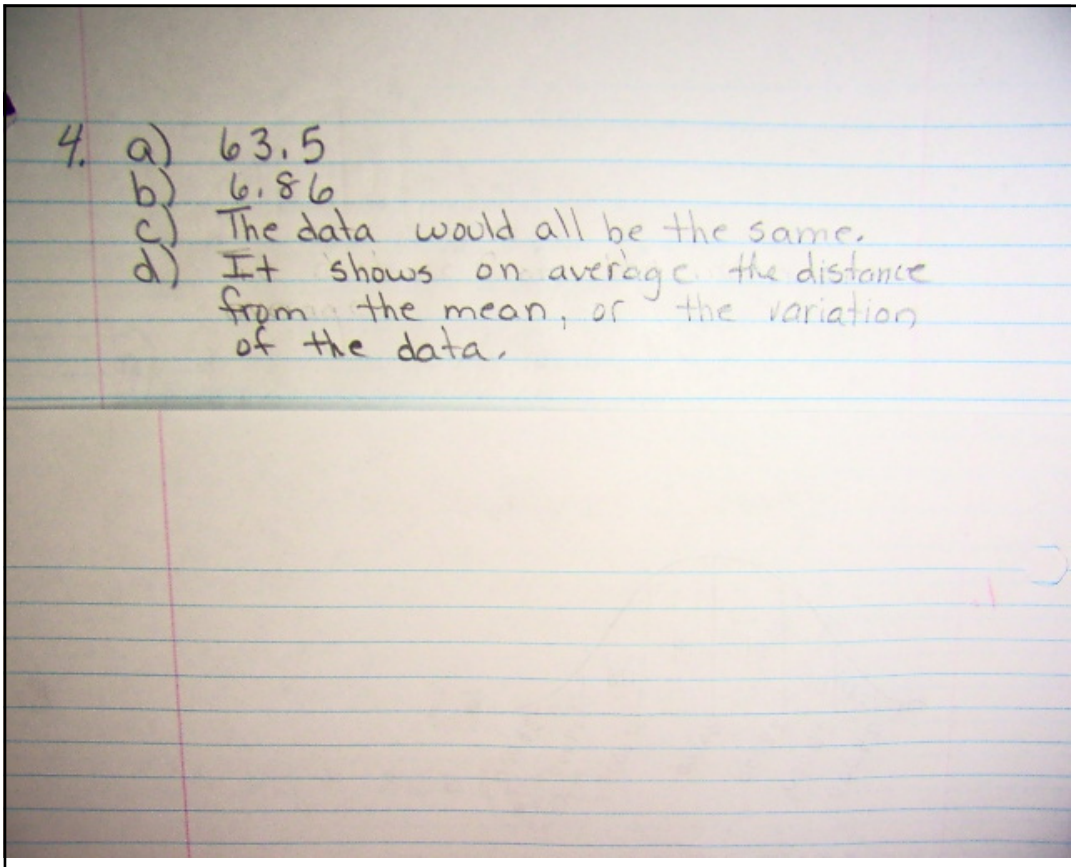
b) Less than 16 minutes

13.5 + 2.35 + 0.15

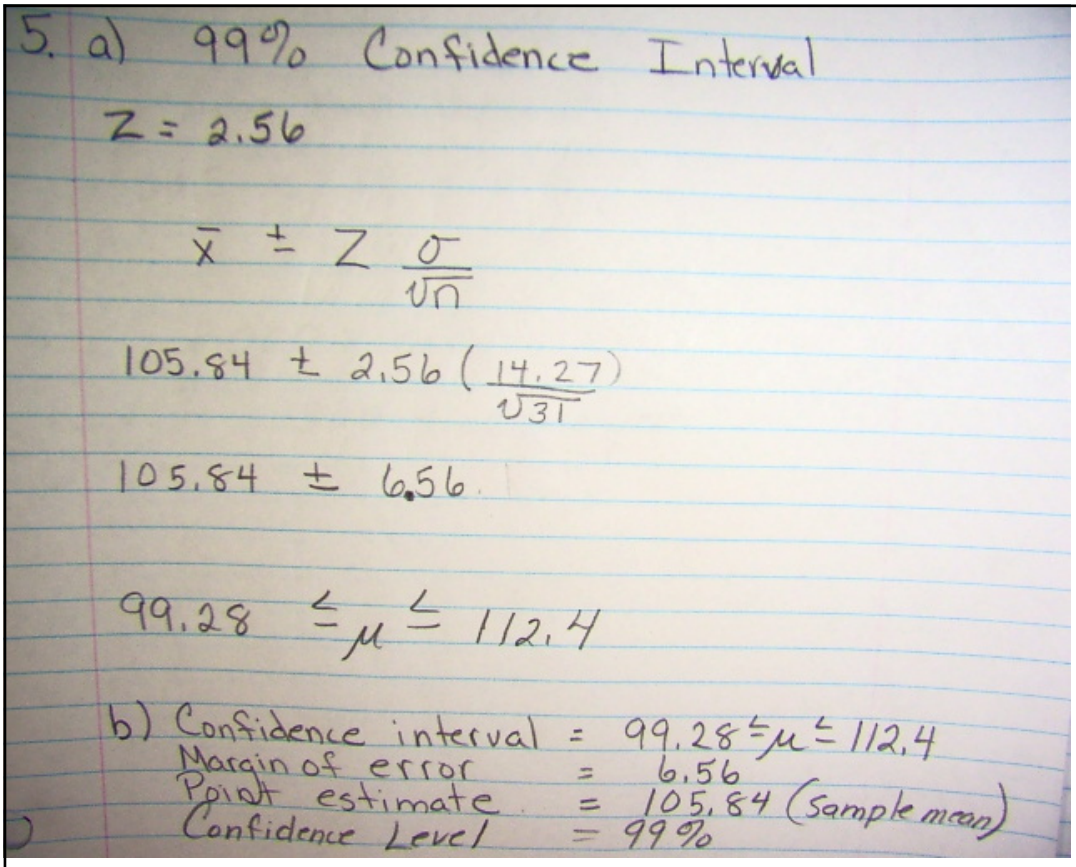
16%

2000 x 0.16

320 ticket buyers.


4. a) 63.5
b) 6.86
c) The data would all be the same.
d) It shows on average the distance from the mean, or the variation of the data.

Oct 1-2:39 PM


5. a) 99% Confidence Interval
Z = 2.56
$\bar{x} \pm Z \frac{\sigma}{\sqrt{n}}$
$105.84 \pm 2.56 \left(\frac{14.27}{\sqrt{31}}\right)$
105.84 ± 6.56
$99.28 \leq \mu \leq 112.4$
b) Confidence interval = $99.28 \leq \mu \leq 112.4$
Margin of error = 6.56
Point estimate = 105.84 (sample mean)
Confidence Level = 99%