

Pledge:

2/21/2006
Dr. Lunsford

MATH 171 – Statistical Decision Making
Test 1

Name: Solution
100 Points Possible

Problem I. The National Center for Education Statistics reported 1999 average mathematics achievement scores for eighth graders in 38 nations. Below is a frequency chart of the data. Please answer the following questions: (21 points total)

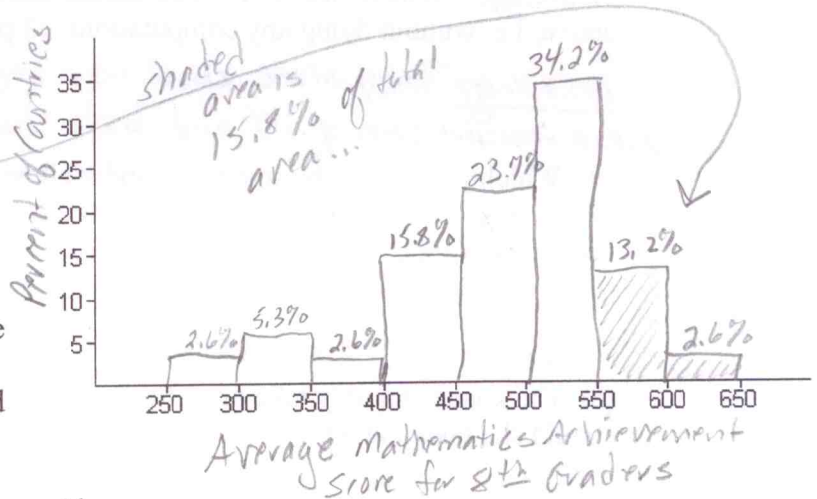
X : Score	Frequency	Percent Frequency
$250 \leq X < 300$	1	2.6%
$300 \leq X < 350$	2	5.3%
$350 \leq X < 400$	1	2.6%
$400 \leq X < 450$	6	15.8%
$450 \leq X < 500$	9	23.7%
$500 \leq X < 550$	13	34.2%
$550 \leq X < 600$	5	13.2%
$600 \leq X < 650$	1	2.6%

(a) Please complete the frequency chart by finding the percent frequencies of the data. Only show the percent frequency values to one decimal place (i.e. xx.x%). (5 points)

(b) Use the frequency chart of the data to construct a percent frequency histogram on the axes provided below. Although I have provided values on the axes, please clearly label your axes for this histogram. (6 points)

(c) What percent of the 38 nations had an average achievement score of at least 550? Please show this percent graphically by shading the appropriate area on your histogram. (4 points)

$13.2 + 2.6 = 15.8\%$



(d) The United States had an average achievement score of 502. Which of the following best describes the performance of the United States eighth graders compared to their peers around the world (circle one)? (2 points)

Below average

About average

Above average

(e) Which is the best description of the shape of the distribution of average achievement scores for the 38 nations (circle one)? (2 points)

Left Skewed

Right Skewed

Uniform

Symmetric Unimodal

Bimodal

(f) For the distribution of average achievement scores for the 38 nations, which do you think is larger, the mean or the median? Why? (2 points)

mean < median (ie the median is larger).
This is because of the left (or negative) skew of the graph which pull the mean to the left of the median.

