STATISTICS REVIEW DAY WARM – UP NAME_____

1a. Give an example of a *stratified sample:*

Answers will vary

b. Give an example of a *convenience sample:*

Answers will vary

2. Calculate the mean, median, mode, and standard deviation from this frequency distribution.

Score	12	13	14	16	18	21
Frequency	9	4	1	5	2	7

Mean 15.607 Median 15 Mode 12 St. Dev 3.665

3. Assume that in your math class you have earned the following test scores: 99, 83, 67, 70. Only one test remains. If you need a mean score of 80, then what minimum score must you obtain on the last test?

$\frac{99+83+67+70+x}{5} = 80$ $319+x = 400$ $x = 81$

4. Suppose for a given month that the mean daily closing price (all numbers in dollars) for Expensive, Inc. common stock was 114.3 with a standard deviation of 13.7. For Cheap, Inc. stock, the mean daily closing price was 54.9 with a standard deviation of 4.9. Which stock was more VOLATILE?

coefficient of variation: $\frac{\text{St. dev}}{\text{mean}}$ Expensive: $\frac{13.7}{114.3} = 12\%$ Cheap: $\frac{4.9}{54.9} = 9\%$

Expensive Inc is more VOLATILE (varies more)

5. The grades on a chemistry midterm at FVHS are normally distributed with $\bar{x} = 70$ and $s_x = 5.0$.

a) Stephanie scored 81 on the exam. Find the z-score for Stephanie's exam grade.

$z = \frac{81-70}{5}$ 2.2

b) Dylan scored a 62 on the exam. Find his z – score.

$z = \frac{62-70}{5}$ −1.6

c) What grade on the midterm would give a z-score of 1.3?

$1.3 = \frac{x-70}{5}$ $6.5 = x-70$ $x = 76.5$

6. *Use the EMPIRICAL RULE:*

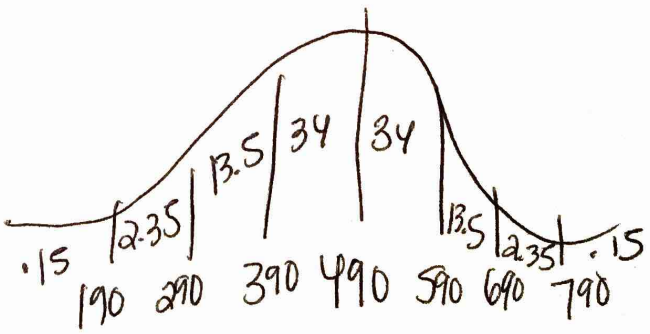
The average SAT score for the math section is a 490 with a SD of 100. If 5000 kids took the test, find the following:

a. # of students that scored between 390 and 590

(5000)(.68) = 3400

b. How many students scored above a 790?

(5000)(.0015) = 7.5 ~8



7. *Use the standard Normal Probability Table:*

Convert the following z – scores into proportions:

a. $z = -1.25$ → .1056

b. $Z = 0.07$ → .5279

c. $Z = -3.39$ → .0003

Convert the following proportions into z – scores:

d. bottom 30% — look for .3000 — closest → .3015 → −0.52

e. Top 13% — look for .8700 — closest → .8708 → 1.13

f. Bottom 5% — look for .0500 — # split between .0505 & .0495 → −1.645

8. *Use the calculator:*

There are 125,000 student scores in the data set. The mean is 125, and the st dev is 17.

a. How many students are between 121 and 137.2?

normcdf(121, 137.2, 125, 17) = .3565

now multiply by the # of students!

~44,565 or ~44562 if you rounded

b. What is the probability of randomly picking a score between 118 and 119?

normcdf(118, 119, 125, 17) = .0218

c. What percent of the data falls below 111?

normcdf(0, 111, 125, 17) = .2051

d. What is the value below which 32% of the data fall?

32%

invnorm(.32, 125, 17)

117.05

e. What is the value above which 42.5% of the data fall?

42.5%

invnorm(.575, 125, 17)

128.22