Day 1 HW - KEY

Honors Math 3 Empirical Rule & Z-Score Practice!

1. Given an approximately normal distribution what percentage of all values are within 1 standard deviation from the mean?

68%

2. Given an approximately normal distribution what percentage of all values are within 2 standard deviations from the mean?

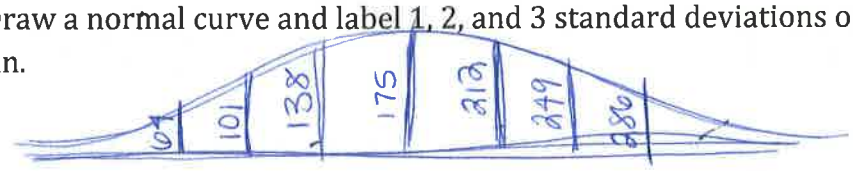
95%

3. Given an approximately normal distribution what percentage of all values are within 3 standard deviations from the mean?

99.7%

4. Given an approximately normal distribution with a mean of 175 and a standard deviation of 37.

a) Draw a normal curve and label 1, 2, and 3 standard deviations on both sides on the mean.



b) What percent of values are within the interval (138, 212)?

68%

c) What percent of values are within the interval (101, 249)?

95%

d) What percent of values are within the interval (64, 286)?

99.7%

e) What percent of values outside the interval (138, 212)?

32%

f) What percent of values are outside the interval (101, 249)?

5%

g) What percent of values are outside the interval (64, 286)?

0.3%

h) What percent of values are outside the interval (101, 286)?

2.65%

i) What percent of values are below 138?

16%

j) What percent of values are above 286?

0.15%

DAY 1 HW - KEY

5. The heights of male students is normally distributed with a mean of 170 cm and a standard deviation of 8 cm. Find the percentage of male students whose height is: (Draw and label a normal curve to help)

a) between 162 cm and 170 cm

34%

b) between 170 cm and 186 cm

20.5%

c) between 178 cm and 186 cm

13.5%

d) less than 162 cm

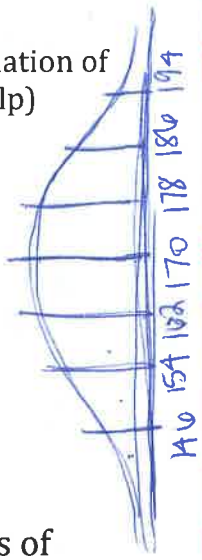
16%

e) less than 154 cm

2.5%

f) greater than 162 cm

84%



Z SCORE PRACTICE!

1) A population has a mean of 45 and a standard deviation of 5. Find the z-scores of the following raw scores:

a) score = 47 .4 b) score = 48 .6 c) score = 40 -1 d) score = 39 -1.2

2) Three students take equivalent stress tests. Which is the highest relative score (meaning which has the largest z score value)?

a. A score of 144 on a test with a mean of 128 and a standard deviation of 34. ≈ .47

b. A score of 90 on a test with a mean of 86 and a standard deviation of 18. ≈ .22

c. A score of 18 on a test with a mean of 15 and a standard deviation of 5. ≈ .6

3) The following table shows the scores of subject 1 on six different scales of an aptitude test. Also shown are the means and standard deviations of these scales.

Test	Mean	Standard Deviation	Score	Z-Score
Clerical Ability	50	15	41	-0.6
Logical Reasoning	40	4	47	1.75
Mechanical Ability	120	25	100	-0.8
Numerical Reasoning	100	10	105	0.5
Spatial Relations	70	20	90	1
Verbal Fluency	60	6	70	≈ 1.67

a) Calculate the z-scores for each.

b) On which test did subject 1 score the highest? The lowest?

logical reasoning

mechanical ability