

Name: _____ LAVC / Raskoff / Statistics 1 / _____ / Z Scores

Z Score or Standard Score represents the number of standard deviations a score (data value) falls above or below the mean for the data set. Z score is affected by outliers or extreme values (since the mean and standard deviation are affected by outliers).

Find the Z score for X

1. $Z = \frac{X - \bar{X}}{sd}$ where X = score; \bar{X} = mean for X

2. Look up the Z Score (column A) on the Table for the Normal Curve (Appendix) and find the appropriate proportion (column B or C)

3. Interpret: “___% of the cases in the data set scored between (the mean) and (X).” OR “___% of the cases in the data set scored lower/higher than (X).”

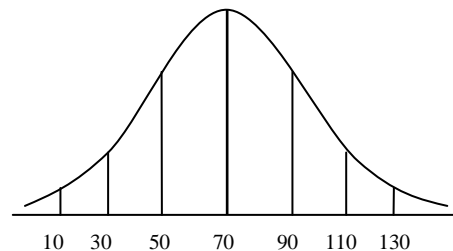
Find the X for percentile (K)

1. Find the percentage (for K percentile) on the Table for the Normal Curve (Appendix) to find the associated Z Score (column A). Use column B or C (remember to account for the percentage on the other side of the curve).

3. $X = \bar{X} + Z(sd)$

4. Interpret: “A score of (X) is at the (K)th percentile which means that most of the scores are ____.”

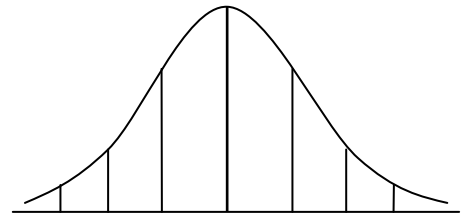
Example 1: Many organizations test their potential employees on a variety of psychological dimensions. One organization uses a test for GREGARIOUSNESS. This test is normed (adjusted) to have a mean of 70 and a standard deviation of 20.



- a. Tino scored 40. What is his percentile rank and what does it mean?
- b. Gaelin scored 65. What is her Z Score?
- c. What percentage of scores is between 35 and 90?
- d. What is the proportion of people who should score above 115?
- e. The organization wants to hire only those who score at the 87th percentile or above. What is the cutoff score they should use?

Example 2. A Police department gives a HIRING EXAM that has a mean of 98 and a standard deviation of 13.

- Only the top 12% will be accepted. What is the cutoff score (below which 88% will fall)?
- What is the Z Score for the cut off score?
- Vahik scored 115 on this exam. Will he be accepted?



Example 3. A company gives a test for writing and software expertise to potential employees. The Writing test has a mean of 56.4 and a standard deviation of 9.3; the Software test has a mean of 68.7 and a standard deviation of 5.6.

- Bill took both tests and scored a 65 on the Writing test and a 70 on the Software test. On which test did he do better, relative to others who also took those tests?
- Ted also took these tests, scoring a 67 on the Writing test and a 75 on the Software test. On which test did he do better, relative to others who also took those tests?
- What is the proportion of applicants who scored below Bill's Software test score?
- What is the percentile rank of Ted's Writing test score?
- Based on all this information, if you were the decision-maker, whom would you hire, Bill or Ted?

