**POWER (Rangers) Example**

Assume that a researcher was studying the effects of watching the Power Rangers on a child’s imagination. The population’s scores are known to have a mean of 80 with a standard deviation of 30 on the Imagination scale. The researcher believes that if he carried out an experiment, the individuals who watched Power Rangers would score higher on this measure than the population that in the sample of 5 participants their average score would be 120. Using the 4 steps of figuring statistical power find the power of the study.

* Step 1: Determine the information needed to calculate power
  + Population mean (um)
  + Standard error (N, o needed)
  + Sample mean found (M)
  + Alpha (p < .05 or p<.01)
* Step 2: Determine a critical z value (cut off score)
  + Calculate raw score for that z:
  + Mneeded = um + (om)\*z
* Step 3: Figure out the distance between the M needed and sample M you estimated
  + Z = (Mneeded – Msample) / om
* Then the percentage of the distribution above/below that score is power
  + (matches your hypothesis of higher or lower)

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| Sample Size | Effect Size | Power |
| 5 | 1.33  Sample M = 120  Pop M = 80  Pop SD = 30 |  |
| 20 | 1.33  Sample M = 120  Pop M = 80  Pop SD = 30 |  |
| 5 | .67  Sample M = 100  Pop M = 80  Pop SD = 30 |  |