Cumulative Review Exercises

Heights of Mothers and Daughters. ***In Exercises 1–5, use the following heights (in.) of mothers, fathers, and their adult daughters. The data are matched so that each column consists of heights from the same family.***

Mother	63	67	62	69	63	64	63	64	60	65
Father	69	70	69	62	66	76	69	68	66	68
Daughter	62.2	67.2	63.4	68.4	62.2	64.7	59.6	61.0	64.0	65.4

1. a. Are the three samples independent or dependent? Why?

b. Find the mean, median, mode, range, standard deviation, and variance of the heights of the daughters. Express results with the appropriate units.

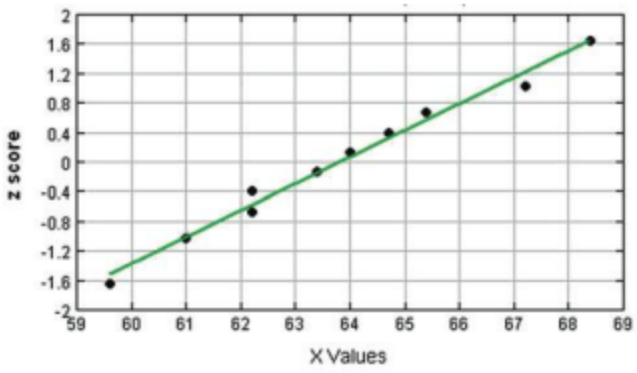
c. What is the level of measurement of the sample data (nominal, ordinal, interval, ratio)?

2. Scatterplot Construct a scatterplot of the paired mother/daughter heights. What does the result suggest?

3. Confidence Interval Construct a 95% confidence interval estimate of the mean height of daughters. Write a brief statement that interprets the confidence interval.

4. Hypothesis Test Use a 0.05 significance level to test the claim that there is no significant difference between the heights of mothers and the heights of their daughters.

5. Assessing Normality Refer to the accompanying normal quantile plot and determine whether the sample of heights of daughters appears to be from a normally distributed population.



6. Dark Survey In a survey of 1032 Americans, respondents were asked what they miss most when electrical power is lost. Of the respondents 134 indicated their computer and/or Internet access (based on results from a Utility Pulse survey). Use the results to construct a 95% confidence interval estimate of the proportion of all Americans who feel that their computer and/or Internet access is missed most when they lose power. Do the results justify the statement that "fewer than 20% of Americans choose their computer and/or Internet access when identifying what they miss most when electrical power is lost"? Explain.

7. Backup Generator The *USA Today* web site posted this question: "Have you considered getting a home generator for backup power?" Among 928 Internet users who chose to respond, 41% answered "yes." If we use those results to construct a 95% confidence interval estimate of the proportion of the population who have considered getting a generator for backup power, we get this: $0.378 < p < 0.441$. Are we 95% confident that the limits of 0.378 and 0.441 contain the true proportion of the population who have considered getting a home generator for backup power? Explain.

8. Juke Survey Late-night talk show host David Lettermen made jokes about the name "Juke" for a Nissan motor vehicle. (It is kind of funny.) If you have been commissioned to