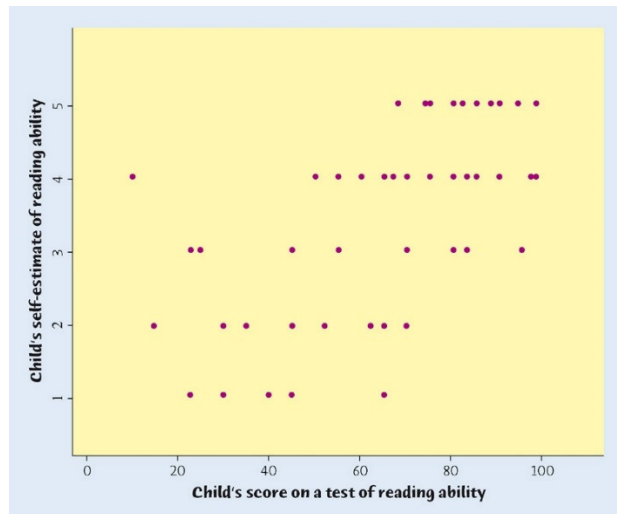Name: _____   Period: _____   Date: _____

AP Statistics: Section 3.1 Practice Worksheet

For questions #1 – 6: Can children estimate their own reading ability? To study this question, investigators asked 60 fifth-grade children to estimate their own reading ability, on a scale from 1 (low) to 5 (high). Here is a scatterplot of the children's estimates against their scores on a reading test.


1. Is there a clear explanatory variable and response variable in this setting? If so, tell which is which. If not, explain why not.

2. Does the scatterplot show a positive association, negative association, or neither? Explain why this makes sense.

3. How would you describe the *form* of the relationship?

4. What explains the "stair-step" pattern in the plot?

5. There is one clear outlier. What is this child's self-estimated reading level? Does this appear to over- or underestimate the level as measured by the test?

6. Describe how each of the following would affect the correlation displayed in the scatterplot:

    • Switching the explanatory and response variables

    • Removing the outlier

For questions #7 – 12: Often the percent of an animal species in the wild that survive to breed again is lower following a successful breeding season. This is part of nature's self-regulation, tending to keep population stable. A study of merlins (small falcons) in northern Sweden observed the number of breeding pairs in an isolated area and the percent of males (banded for identification) who returned the next breeding season. Here are data for nine years:

Breeding pairs	28	29	29	29	30	32	33	38	38
Percent return	82	83	70	61	69	58	43	50	47

7. Is there a clear explanatory variable and response variable in this setting? If so, tell which is which. If not, explain why not.

8. Make a well-labeled scatterplot of these data, **by hand**.
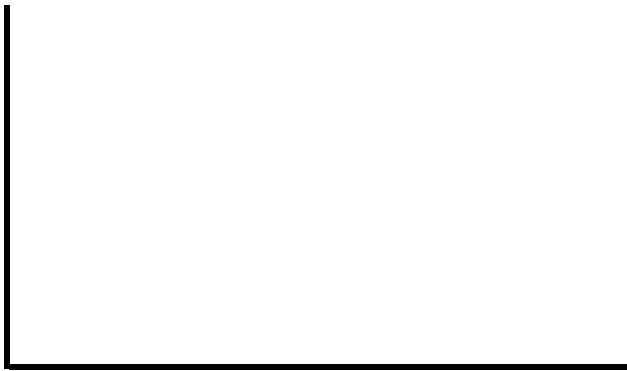
9. How would you describe the *form* of the relationship?

10. Based on the scatterplot, do you expect the correlation to be positive or negative? Near ± 1 or not? Explain.

11. Use your calculator to find the correlation *r* between number of breeding pairs and percent of males returning. Do the data support the theory that a smaller percent of birds survive following a successful breeding season? Explain.

12. How would *r* change if researchers had recorded the *proportion* (such as 0.82) of males who returned instead of the percent (such as 82) who returned? Explain.