Task 1: Investigating the properties of r

(1) Prepare for the class discussion by discussing the following questions in your group:

- What do you think the correlation coefficient, r, measures?

- Is there a largest possible value for r or can it have larger and larger values without limit? What makes you think so?

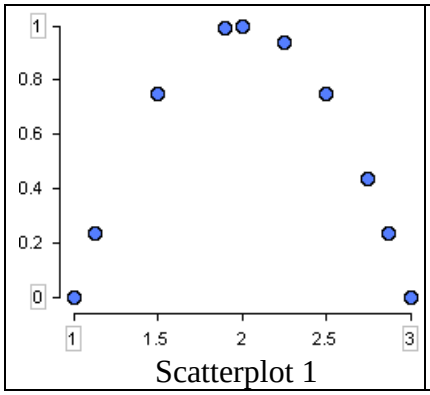
- Is there a smallest possible value for r or can it have smaller and smaller values without limit? What makes you think so?

Task 2: Linear correlation with non-linear scatterplots

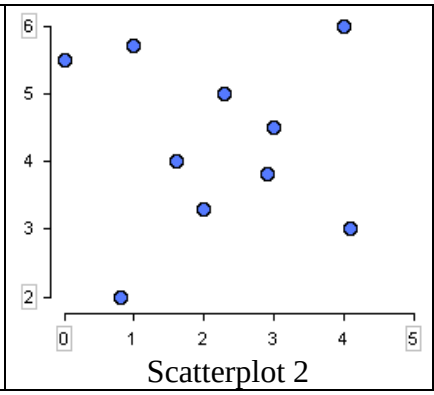
(1) Based on your current experience with r, label each statement as *always true*, *sometimes true*, or *never true*.

- If r is close to zero, there is no relationship between the two variables.
- If r is close to one, the data has a linear form.

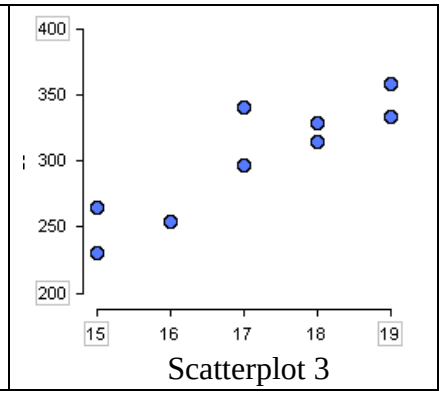
(2) Now examine the following scatterplots. Two of these scatterplots have an r-value close to 0. Determine which two without calculating the r-value.



Scatterplot 1

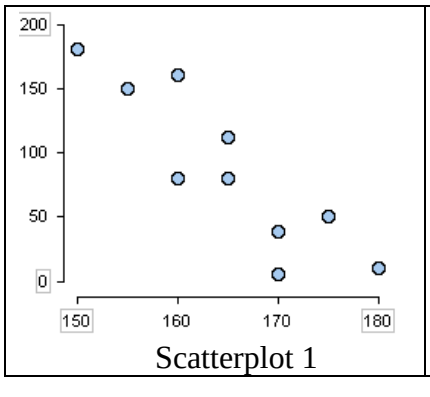


Scatterplot 2

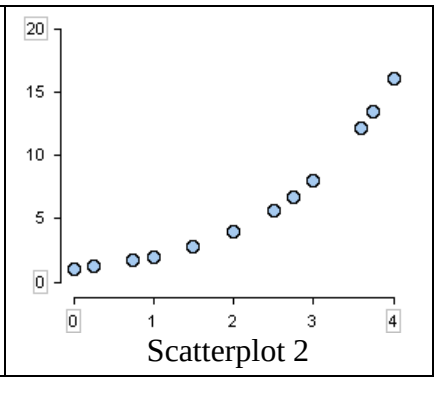


Scatterplot 3

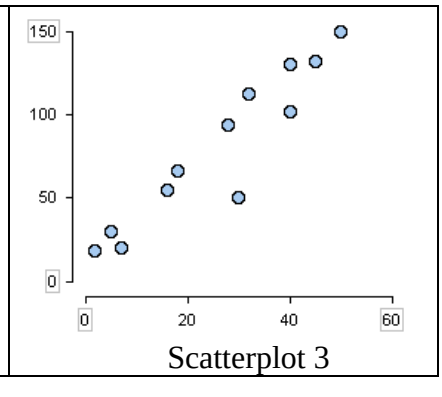
(3) Two of these scatterplots have an r-value close to 0.94. Determine which two without calculating the r-value.



Scatterplot 1



Scatterplot 2



Scatterplot 3

(4) Now let's return to the statements we considered earlier. Use what you observed in (2) and (3) above to determine if the following statements are *always true*, *sometimes true*, or *never true*. (Have your answers changed?)

- If r is close to zero, there is no relationship between the two variables.
- If r is close to one, the data has a linear form.