

Statistical Assignment Week (4)

#1

(a). Compute the Pearson product-moment correlation coefficient.

(n=10)

X	Y	X(2)	Y(2)	XY
17	94	289	8836	1598
13	73	169	5329	949
12	59	144	3481	708
15	80	225	6400	1200
16	93	256	8649	1488
14	85	196	7225	1190
16	66	256	4356	1056
16	79	256	6241	1264
18	77	324	5929	1386
19	91	361	8281	1729
156	797	2476	64,727	12,568

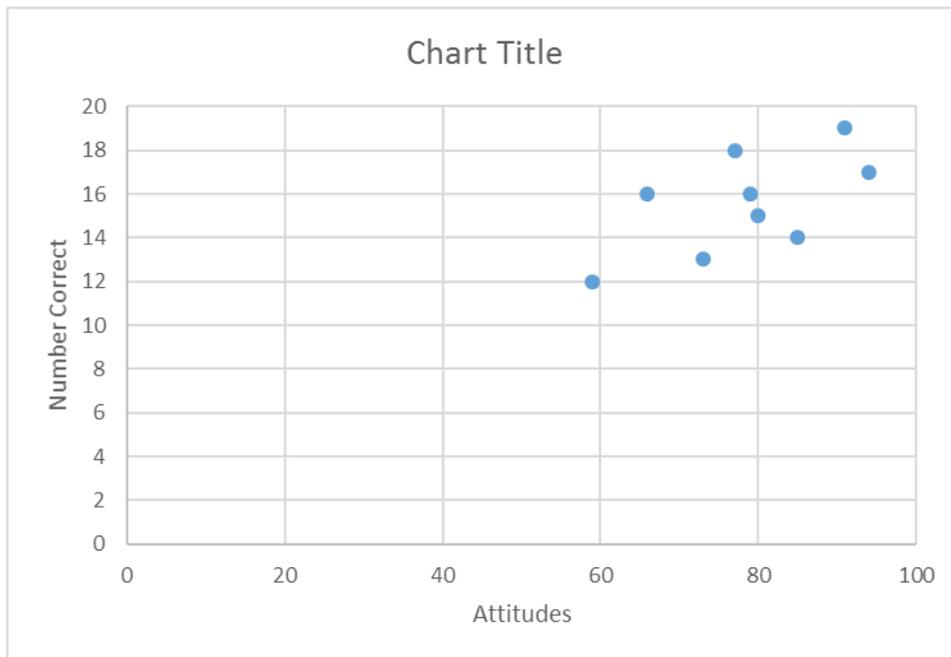
$$\begin{aligned}
 R_{xy} &= \frac{\sqrt{(10)(12,568) - (156)(797)}}{\sqrt{[(10)(2476) - (156)^2] [(10)(64,727) - (797)^2]}} \\
 &= \frac{(125,680) - (124,332)}{\sqrt{[24,760 - 24,336] [647,270 - 365,209]}} \\
 &= \frac{1348}{\sqrt{(424) (12,061)}} = 5113864
 \end{aligned}$$

1348

2261.38

**Answer .596**

(b). Construct a scatterplot for the 10 pairs of values.



Based on the scatterplot, I would predict the correlation between the number correct and attitude to be positive/direct. Saklind (2017) explains how a positive Scatterplot groups data from the left lower corner of a graph to the upper right corner. The scatterplot shown above displays data points which are grouped from the left lower corner of the graph to the upper right corner (Salkind 2017, p. 88). The assumption according to data points, is the number correct seems to be influenced by attitude. As the attitude increases, the number correct increases.

#### Reference

Salkind, N. (2017). *Statistics for people who (think they) hate statistics*. Thousand Oaks, CA: Sage.