Total 115

aAdvanced Psychological Statistics
PSYCH-UA.11
Department of Psychology
Fall 2021

Assignment 3

25

1. Here the frequencies of events in each of five categories

Orange	Blue	Green	Red	Maroon
21	21	18	19	20

1. Using r, (you must show your code and output – see Handbook for code) find the appropriate measure of central tendency. **(5 pts.)**

2. Create a barplot of the distribution. Be sure to label the x and y axes and the names of each team. The title of the graph should be "Categories and Events". **(20 pts.)**

25

2. A researcher wants to know if there is a correlation between introspection and optimism. Using two questionnaires, the researcher collects the following data

Participant	Introspection	Optimism
1	51	55
2	65	80
3	74	71
4	74	66
5	75	74
6	76	68
7	87	51
8	86	67
9	51	74
10	85	67
11	52	81
12	92	83
13	97	87
14	70	74
15	86	84

1. Compute the (Pearson's r) correlation for these data. **(2 pts.)**

2. Plot introspection against optimism. **(3 pts.)** 0.1423 57.2557 0.1169 13.3968

3. Compute the linear model for the data. What are the slope and intercepts? **(5 pts.)**

4. Given the slope, what do you expect the trend of the data to be (e.g. "as x increases, y…") **(10 pts.)**

5. If "Introspection" has a value of 75, what would be the predicted value of "Optimism? **(5 pts.)** 72.1643

15 3. Assume that you have a set of scores measuring visual imagery ability. You have also slope and intercept of a plot that used visual imagery data as the X values and vivid dreaming (detailed and visually-involved dreams) ratings as the Y values. However, the vivid dreaming data isn't available. Using the data below, recreate the Y values, then create the plot and trendline**. (15 pts.)** For the data – the intercept= 6.023, slope = 0.004

Participant	Visual Imagery Rating
1	44
2	38
3	40
4	43
5	47
6	31
7	42
8	42
9	48
10	28
11	40
12	41

4. Below is a table of X values, $\hat{Y}$, and residuals.

Create a trend line and report the slope and intercept values ~~**(15 pts.)**~~

X-values	$\hat{Y}$	Residuals
16	56.86	-21.86
12	146.38	-66.38
15	79.2415	30.76
13	124	26

11	168.76	31.24

28

1. Find the y values. **(10 pts.)**

2. Create a plot (plot the x and y values) with the on the x-axis from 0 to 25 and the y-axis from 0 to 250
(7 pts.)
3. Create a plot (plot the x and y values, with the range of the x-axis from 10 to 25 and the y-axis from 0 to 250
(7 pts.)
4. Create a trend line based only on the y mean
(4 pts.)

5. A developmental psychologist wants to look at the number of different toys a toddler touches in an hour of playing and see if it correlates to language usage (as measured on a scale of 1 to 100). Below is a table of the number toys each toddler plays with

Participant	Number of Toys Used
1	15
2	26
3	27
4	17
5	19

The mean of the speech fluency scores is 61.8.

22

1. Create a plot that lists place a "best guess" trend line given the information provided. (Hint – the mean of speech fluency is *61.8*). **7 pts.)**

   The x-axis should include at least the range of x-values.
   The y-axis should range from 0 to 100

2. Using the values for as 49, 38, 84, 49, 89, Create a trend line using the lm() command and add it to the figure.
   (In the r-command abline(), the "a" stands for the intercept value and the "b" stands for the slope.) **(7 pts.)**
   – An alternative to values for slope and intercept, in abline(), h stands for height (or intercept)

3. So, abline(h =<value>) would do what? **(4 pts.)**

4. So, abline(v = <value>) would do what? **(4 pts.)**