Contents

1 Week #10 CONCEPTUAL:FINAL

- Give an example of two variables which would have a correlation of close to 1
- Give an example of two variables which would have a correlation of close to -1
- Give an example of two variable which would have a correlation of close to 0
- When isn't Pearson's r an appropriate measure?
- Why doesn't correlation imply causation? Does causation imply correlation?
- One sample has n = 10 and a variance of 20, the other has n = 15 and variance of 30; will the pooled variance be closer to 15 or 30 (rewrite this)
- Rank each set of scores:

4, 0, 4, 9, 3
3, 5, 3, 6, 3

2 Correlation

$$\bar{X} = \Sigma(X_i)/n$$
$$df = n - 1$$
$$SP = \Sigma[(X_i - \bar{X})(Y_i - \bar{Y})]$$
$$SS_X = \Sigma[(X_i - \bar{X})^2]$$
$$SS_Y = \Sigma[(Y_i - \bar{Y})^2]$$
$$r_{XY} = SP/\sqrt{SS_X \times SS_Y}$$

3 Critical r values

	α		
$(n-2)$	0.2	0.1	0.05
2	0.8	0.9	0.95
3	0.69	0.81	0.88
4	0.61	0.73	0.81

4 Question #1

Calculate r_{XY} and test H_0: $\rho_{XY} = 0$ at $\alpha = 0.1$.

X_i	Y_i
1.00	4.00
2.00	8.00
2.00	5.00
7.00	7.00

5 Question #2

Calculate r_{XY} and test H_0: $\rho_{XY} = 0$ at $\alpha = 0.2$.

6 Question #3

Calculate r_{XY} and test H_0: $\rho_{XY} = 0$ at $\alpha = 0.1$.

X_i	Y_i
7.00	5.00
6.00	1.00
2.00	4.00
9.00	10.00

X_i	Y_i
6.00	6.00
1.00	9.00
3.00	8.00
6.00	1.00

7 Question #4

Calculate r_{XY} and test H_0: $\rho_{XY} = 0$ at $\alpha = 0.1$.

X_i	Y_i
2.00	9.00
6.00	9.00
2.00	7.00
9.00	6.00
1.00	4.00

8 Question #5

Calculate r_{XY} and test H_0: $\rho_{XY} = 0$ at $\alpha = 0.1$.

X_i	Y_i
7.00	1.00
9.00	3.00
3.00	5.00
1.00	3.00

9 Question #6

Calculate r_{XY} and test H_0: $\rho_{XY} = 0$ at $\alpha = 0.1$.

X_i	Y_i
10.00	5.00
8.00	7.00
5.00	1.00
1.00	7.00
6.00	10.00

10 Question #7

Calculate r_{XY} and test H_0: $\rho_{XY} = 0$ at $\alpha = 0.2$.

X_i	Y_i
1	1
2	2
3	3