

01AB785 Agricultural Research Methodology  
Spring AB 2018  
Feedback Quiz 5 (Correlation and Regression)  
Total Points 10

Name:

ID:

1. The number of advertisements made for the sale of a drink ( $X$ ) and the number of liters ( $Y$ ) (in 100 count) sold are given:

X	5	10	4	0	2	7	3	6
Y	10	12	5	4	1	3	4	8

- i. Find the  $r$  value
- ii. Find the coefficient of determination
- iii. Please comment on your result

2. A researcher believes that there is a linear relationship between BMI ( $\text{Kg/m}^2$ ) of pregnant mothers and the birth-weight (BW in Kg) of their newborn. The following data set provides information on 15 pregnant mothers who were contacted for this study. Please comment on your results based on correlation and regression analysis.

BMI (Body Mass Index) $\text{Kg/m}^2$	BW ( Birth Weight) Kg
20	2.7
30	2.9
50	3.4
45	3.0
10	2.2
30	3.1
40	3.3
25	2.3
50	3.5
20	2.5
10	1.5
55	3.8
60	3.7
50	3.1
30	2.8

3. In an experimental station, a germination test was conducted in corn crop in eight different locations having different soil temperatures. The data on number of days for germination ( $Y$ ) under different soil temperatures ( $X$ ) ( $^{\circ}F$ ) are given as follows. Find the correlation between number of days for germination and soil temperature.

Locations

	1	2	3	4	5	6	7	8
$X$	58	55	45	42	42	36	38	40
$Y$	20	20	25	30	26	40	41	37

4. **Principle of least squares employed in fitting regression line.** Consider the data from an experiment conducted in an experimental station. Find the regression coefficient ?

$X$	N (kg/ha)	25	35	45	55	65
$Y$	Yield (t/ha)	4	6	3	7	8