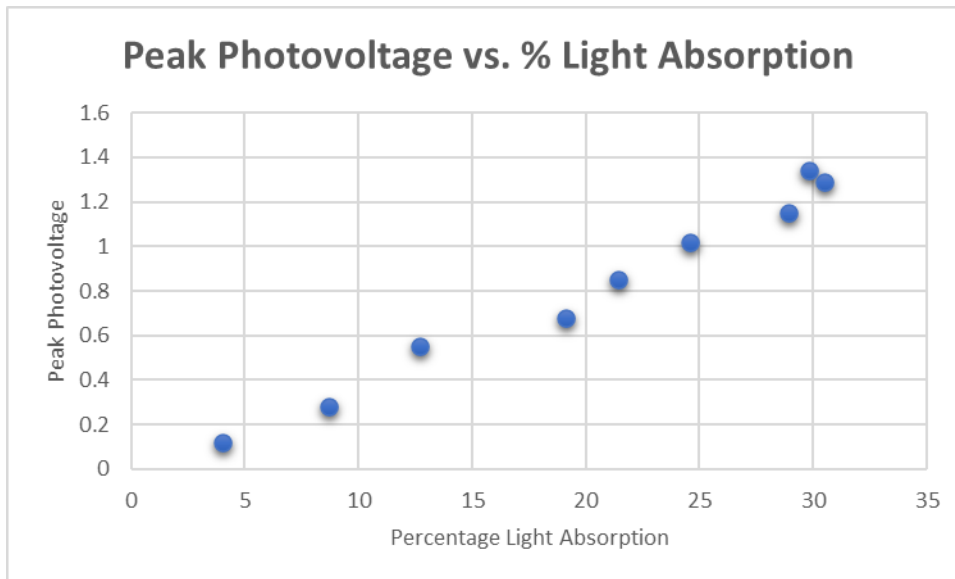


**Instructions:** Answer each question as thoroughly as possible. Round answers to 4 decimal places as needed. Exact answers are best when possible. Be sure to answer all parts of each question.

1. The data below compares the percentage light absorption and peak photovoltage.

$x$	4.0	8.7	12.7	19.1	21.4
$y$	.12	.28	.55	.68	.85
$x$	24.6	28.9	29.8	30.5	
$y$	1.02	1.15	1.34	1.29	

- a. Enter the data into R and create a scatterplot. Does the data appear linear? How strong is the correlation?



This does appear to be a strong linear correlation.

- b. Construct a simple linear regression equation.

$$y = 0.0446x - 0.0826$$

- c. What proportion of the variability in peak photovoltage can be explained by the percentage of light absorption?

0.9827

- d. Predict peak (mean) photovoltage when % absorption is 19.1%.

0.770193

- e. Describe your hypothesis test of the model/slope coefficient.

$$H_0: \beta_1 = 0$$

$$H_a: \beta_1 \neq 0$$

19.95876703

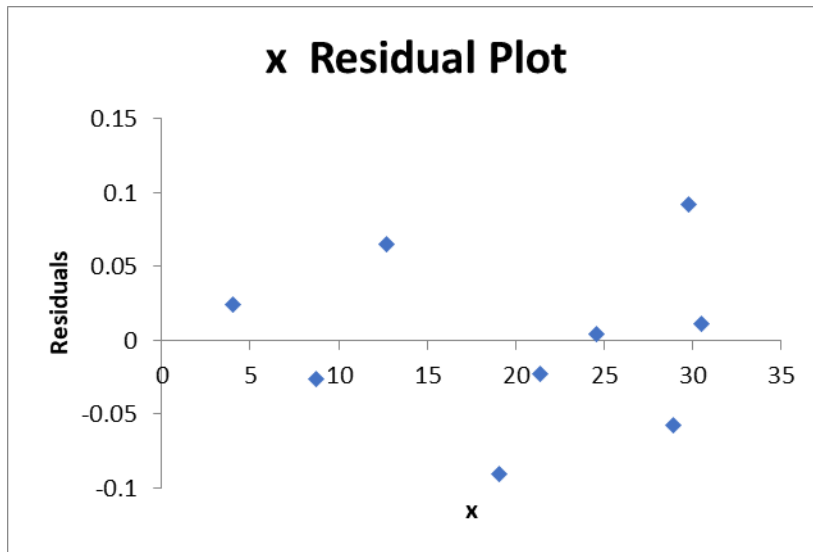
1.98289E-07

Test-stat

P-value

Reject null. There is sufficient evidence that the slope is not 0.

f. Plot your residuals.



Include all graphs and model output to support your analysis.