

Name: \_\_\_\_\_ Hour: \_\_\_\_\_ Date: \_\_\_\_\_

## Does seat location matter – Part 2?



Seating Chart

1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7
3	4	5	6	7	8	3	4	5	6	7	8	3	4	5	6	7	8	3	4	5	6	7	8
4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9

Do students who sit in the front rows do better than students who sit farther away? Mrs. Gallas took a random sample of 30 students from her classes and found these results.

Row	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3
Score	76	77	94	99	88	90	83	85	74	79	77	79	90	88	68	78	83	79

Row	4	4	4	4	4	4	5	5	5	5	5	5
Score	94	72	101	70	63	76	76	65	67	96	79	96

Line of best fit: \_\_\_\_\_

Slope:  $b =$  \_\_\_\_\_  $SE_b = 1.33$

1. If Mrs. Gallas were to take another random assignment of 30 students, do you think the slope of the LSRL would be the same? Why?

2. We are going to construct a 95% confidence interval for the slope of the population regression line. Identify the parameter and statistic.

Parameter: \_\_\_\_\_

Statistic: \_\_\_\_\_

3. There are five conditions to check.

- (1) **Linear:** The **scatterplot** needs to show a linear relationship. Also, the **residual plot** doesn't have a leftover curved pattern. Sketch each at right.
- (2) **Independent:**
- (3) **Normal:** A **dotplot of the residuals** cannot show strong skew or outliers. Make one using the applet and sketch it at right.
- (4) **Equal SD:** The residual plot does not show a clear sideways Christmas tree pattern.
- (5) **Random:**

4. Construct the interval:

General Formula:

Specific Formula:

Work:

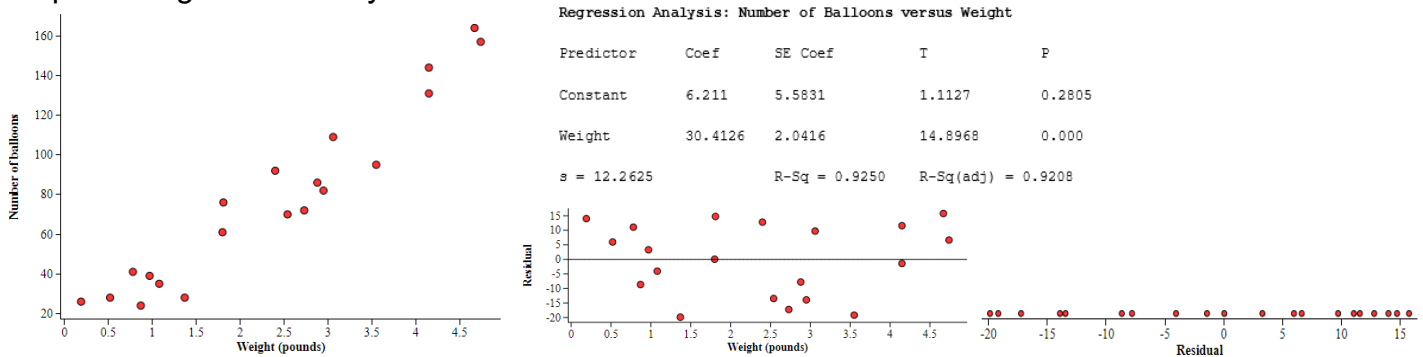
5. Conclude:

## Confidence Intervals for Slope

Important ideas:

### Check Your Understanding

A thrill-seeker wanted to try to travel across a large field while being suspended in the air by holding onto balloons. In order to determine the number of balloons needed per pound of weight, he did a preliminary study. He selects a random sample of 20 rocks of various sizes. He weighed each one and also determined how many balloons are needed to lift the rock. Here is output from a least-squares regression analysis of the data.



Construct and interpret a 90% confidence interval for the slope of the population regression line.