

Chapter 3 & 4 Check-In - **Quiz Key/Rubric**

1. What is the relationship between the price charged for a hot dog and the price charged for a regular size soda in major league baseball stadiums? Here are some data:

Team	Hot Dog	Soda	Team	Hot Dog	Soda	Team	Hot Dog	Soda
Angels	3.50	2.75	Giants	2.75	2.17	Rangers	2.00	2.00
Astros	2.00	2.00	Indians	2.00	2.00	Red Sox	2.25	2.29
Braves	2.50	2.25	Marlins	2.25	1.80	Rockies	2.25	2.25
Brewers	2.00	2.00	Mets	2.50	2.50	Royals	1.75	1.99
Cardinals	3.50	3.00	Padres	1.75	2.25	Tigers	2.00	2.00
Dodgers	3.50	2.75	Phillies	2.75	2.20	Twins	2.50	2.22
Expos	1.75	2.00	Pirates	1.75	1.75	White Sox	2.00	2.00

- a. Make a scatterplot appropriate for predicting soda price from hot dog price. Describe the relationship. [6pts]

1pt for scatterplot
1pt for labeling window on scatterplot

Discuss

- 1pt • strength
- 1pt • form (linear vs. non-linear)
- 1pt • direction (positive vs. negative)
- 1pt • explain in context (as hot dog goes up, so does soda price)

- b. Find the correlation between hot dog price and soda price. Explain this value. [3pts]

1pt $r = \#$

1pt relatively strong relationship b/w hot dog & soda prices
1pt b/c close to 1

- c. Find the coefficient of determination (r^2). Interpret this value. [3pts]

1pt $r^2 = \#$

1pt $\%$ of the variation in the predicted soda prices can be explained by LSRL or hot dog prices context 1pt

- d. Find the equation of the least-squares regression line for predicting soda price from hot dog price. [3pts]

1pt $\hat{y} = _ + _ x$

1pt where x represents the price of a hot dog
1pt $\hat{y}$ represents the predicted soda price.

- e. Explain carefully what the intercept of the LSRL tells us. [2pts]

remember to write in context! -1 for no context

When a hot dog is free (cost \$0), then the predicted soda cost \$ $_$.

- f. Discuss how well the LSRL fits the data. [5pts]

1pt r^2

residual plot } these two help us discuss the fit of an LSRL.

- 1pt ① Since r^2 is close to 1 explain why it is good
- 1pt ② Since no clear pattern to residual plot explaining why it is good
- 1pt ③ Conclude: Pretty good fit
- 2pt ④ Include residual plot always provide proof so I'm not just trusting that you did it or that you are making it up.