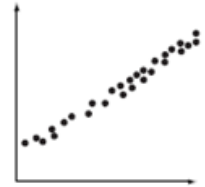


**Do Now:** Determine if the correlation is positive, negative, or zero:

- The weight of gold and the value its worth. \_\_\_\_\_
- The number of people that attend Calhoun's "Spring Fling" and the cost of its admission \_\_\_\_\_
- The number of partners in a business and the profit each partner receives. . \_\_\_\_\_

**Do Now:** The following scatter plot would most likely have which correlation coefficient?

- (a) -1                      (b) -0.54                      (c) 0.87                      (d) 1



### AIM: LINEAR REGRESSION (Day 2)

**Interpolation:** Looking for values that fall \_\_\_\_\_ the given data.

**Extrapolation:** Looking for values that fall \_\_\_\_\_ the given data. The further away from the plotted values you go the less reliable your prediction is.

- The chart below shows the amount of active ingredients,  $m$ , in milligrams, of blood pressure medication present in a person's bloodstream  $h$  hours after the medicine is consumed.

$h$	.5	1	1.5	2	2.5	3
$m$	112	86	53	41	27	19

- Determine a linear regression for  $h$  (hours) versus  $m$  (amount of medication) based on the given data. (Round values to the nearest thousandth.)
- Determine the amount of medication in the bloodstream at 1.75 hours. (Round to the nearest integer)
- If this linear relationship continues, after how many hours is this medication completely removed from the bloodstream?
- Find the correlation coefficient to the nearest ten thousandth and explain its meaning.

2. a) Find the line of best fit for the given data. (Round values to the nearest tenth.)

Sandwich	Total Fat (g)	Total Calories
Hamburger	9	260
Cheeseburger	13	320
Quarter Pounder	21	420
Quarter Pounder with Cheese	30	530
Big Mac	31	560
Arch Sandwich Special	31	550
Arch Special with Bacon	34	590
Crispy Chicken	25	500
Fish Fillet	28	560
Grilled Chicken	20	440
Grilled Chicken Light	5	300

b) Predict the total calories based upon 40 grams of fat. (Round to the nearest integer.)

c) Were you interpolating or extrapolating data for part b? Explain.

d) Predict the total grams of fat based upon 400 calories. (Round to the nearest integer.)

e) Were you interpolating or extrapolating data for part d? Explain.

f) Find the correlation coefficient to the nearest thousandth and explain its meaning.

g) Is there a causal relationship for both examples #3 and #4? Explain.

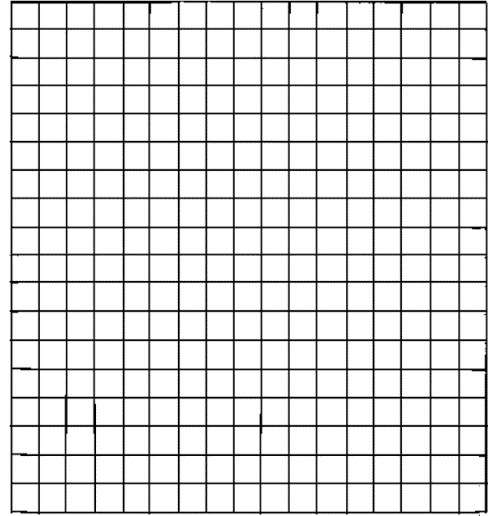
Name: \_\_\_\_\_

Date: \_\_\_\_\_

HW# \_\_\_\_\_

1. Lia's kindergarten class recently played "the secret message whisper game". The teacher recorded the time the message took to reach the end of the chain for only one person being told, then for two people passing it on, and then for three, four, five, and six.

No. of persons told the secret (x)	Seconds to reach the end of chain (y)
1	3
2	7
3	9
4	11.5
5	14
6	18



- Graph a scatterplot for the data and sketch the line of best fit.
- Find the line of best fit. Round the values to the nearest tenth.
- Find the correlation coefficient to the nearest ten thousandth and explain its meaning.
- How long will it take 100 people to pass the message?
- Were you interpolating or extrapolating data for part d? Explain.
- How many people could hear the message in 3 *minutes*?
- Is there a causal relationship? Explain.

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