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HW #3 week 4

4.2

- a) The number of square feet matters more since in comparison to the other variable, in the graph with square feet as x variable, the graph has a much more linear trend compared to number of fireplaces as the x variable.
- b) I would make a better prediction using # of square feet as it has a stronger trend in the scatterplot in comparison to # of fireplaces

4.6 Based on the trend, Professors who started in 1985 make the most \$ professors who started in 2007 makes the least

4.10 It shows a very little trend as points are scattered randomly. It has a very high spread

4.14 It doesn't make sense to find correlation as the graph shown has a bell curve shape meaning there is not a linear relationship. The graph says highest fertility is at age 28 for females

4.18

-0.903 B
0.374 A
0.777 C

4.30

a) dependent is Daughter's height. Independent is mother's height

b) Roughly 62 inches tall

c) $29.92 + 0.5417(60) \approx 62.42$ inches tall

d) For each inch increase in the mother's height, a daughter grows 0.5417 inches taller

e) Father's height might also influence daughter's height

4.32

a) Roughly 310 dollars

b) $-11.77 + 0.1146(3000) = 332.03$

4.34

a) A Foot's length is 5.67 cm + 0.998 length of a person's hands (cm)

b) $b = 0.948 \frac{1.230}{1.168} \approx 0.998$

c) $a = \bar{y} - b\bar{x} = 23.318 - 0.998(17.682) = 5.67$

d) $5.67 + 0.998(18) = 23.634$ cm

4.40 I believe correlation value is -1 since the scatter plot is linearly decreasing with all points along a line with slope -1

4.42

- a) weight in gold is x variable (predictor) & value of gold is y variable since weight of a gold determines worth
- b) Chlorine amount is x variable predictor & Chlorine concentration is y variable since you're predicting chlorine concentration based on amount initially added
- c) Circumference is the x variable predictor & age is y variable since you want to predict age based on circumference

4.54

- a) extrapolation is trying to predict y variable outside of scatter plot range of values in data
- b) Coefficient of determination is the square of the correlation. It shows how well the regression line approximates data.
- c) No, it doesn't as correlation doesn't necessarily mean causation.

4.68

- a) The trend is positive. The more people, the more trash produced.
- b) $\sqrt{76.9} = 0.876$
- c) 11.30 lbs per extra person
- d) Intercept means weight of trash with 0 people, so it is not appropriate

4.70

The graph shows that countries with more tv's per person has a higher life expectancy. This is probably due to factors, such as medicine & better technology rather than tv's. I don't believe having more tv's will make you live longer. Countries with more tv's are usually more developed & better off; Correlation doesn't mean causation.