Name: _Caleb McWhorter — Solutions_

MATH 108
Spring 2023
HW 8: Due 03/06

Problem 1. (10pt) Kelsey is gambling at a casino. She is playing a game where you roll two die. If you roll two 6's, you win $100. If you the dice and the numbers on both die are four or greater (but not two 6's), you win $10. If the numbers on both die are less than 3, you lose $8. Otherwise, you win nothing. You must pay $5 as a 'buy-in' each round to play. Find the amount that you win/lose 'on average.' Should one play this game?

Problem 2. (10pt) Find the least square regression line for the points: $(1, 3), (3, 5), (1, 2), (2, 2)$. Show all your work.

Problem 3. (10pt) Given the following information below, find the least square regression line. Show all your work.
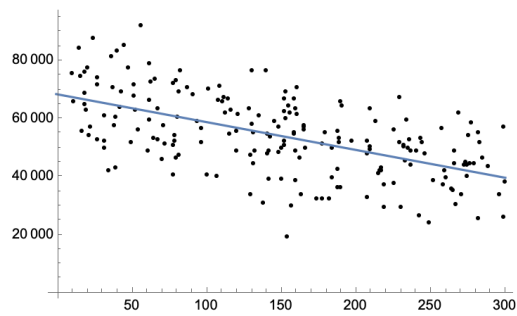
$$n = 200$$
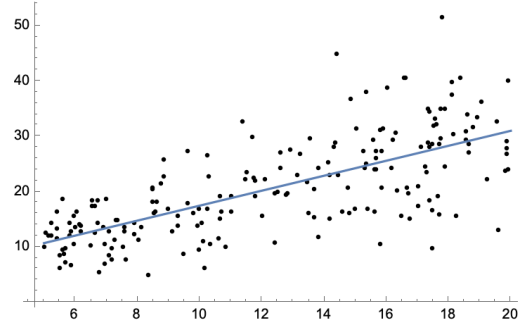$$\overline{x} = 4.42726, \quad \sigma_x^2 = 10.6639$$
$$\overline{y} = 46.5248, \quad \sigma_y^2 = 1053.77$$
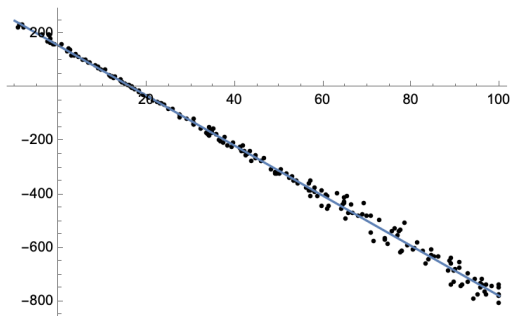$$R = 0.962639$$

Problem 4. (10pt) Match each regression coefficient to its corresponding graph.
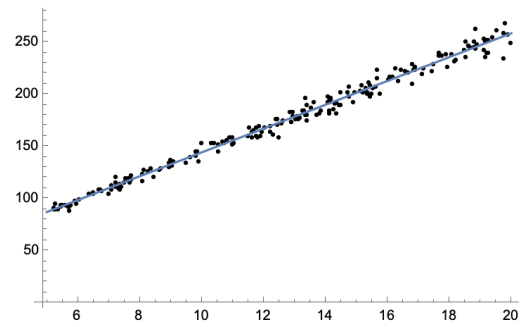

(a)

(b)

(c)

(d)

(i) _____: $R = 0.836288$

(ii) _____: $R = -0.998836$

(iii) _____: $R = 0.997066$

(iv) _____: $R = -0.759531$