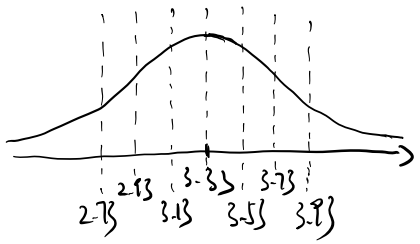
1. a) 68%

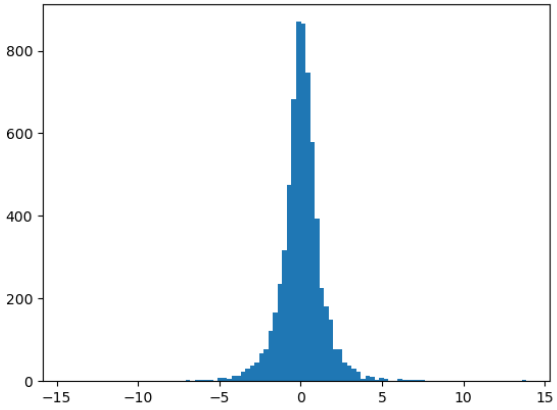
b)



97.5%.

c) $3.33 + 1.65 \times 0.20 = 3.63$.

2. a)

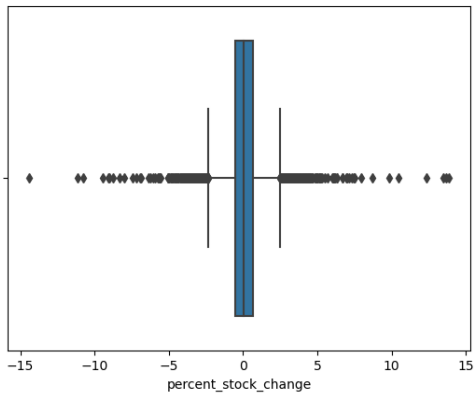


The distribution follows a symmetric bell shape.

b) $\bar{x} = 0.058$ $s = 1.895$

c) 98.44%. Yes. For $\mu - 3\sigma$ to $\mu + 3\sigma$, 99.7% of the data include while there's only 98.44% of these data included in $\bar{x} - 3s$ to $\bar{x} + 3s$

d)

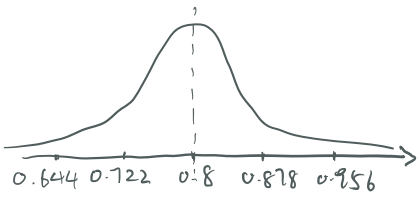


Q3 a) 10.03%

b) (0.8-0.7)/0.078 = 1.28. From the table A in the text book we can know that the proportion from -1.28 to 0 is 39.97%, so the proportion of flies have thorax length less than 0.7mm is (50% - 39.97%) = 10.03%.

c) 99.48%

d)

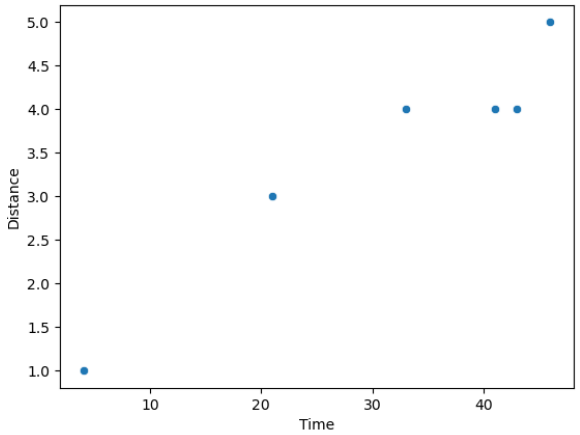


e) (1.0 - 0.8)/0.78 = 2.56

50% + 49.48% = 99.48%.

f) 0.853.

Q4 a)



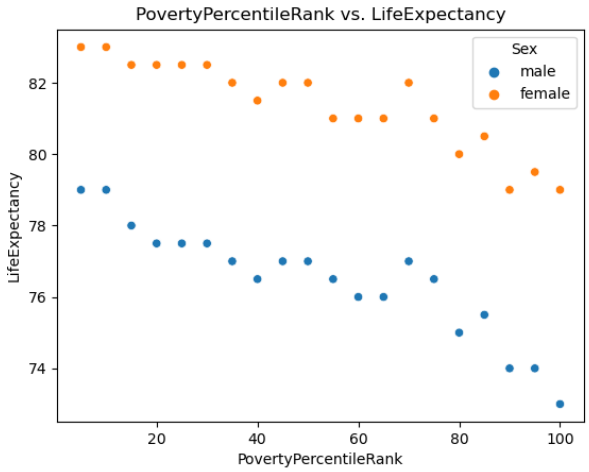
Distance is the explanatory variable

b) r = 0.9623

c) r' = 0.9623, the correlation does not change.

Because the correlation shows the relation between two variables.

Q5 a)



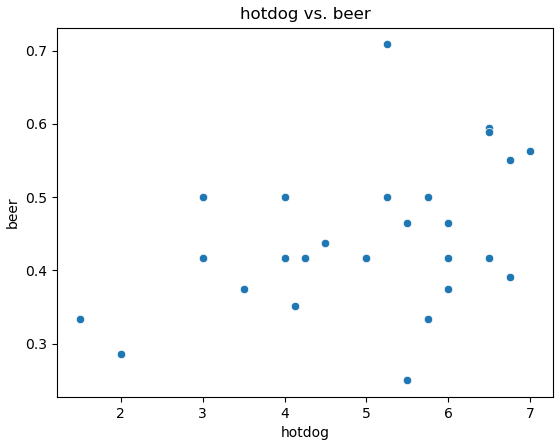
b) A linear negative relation. Female tends to have a larger life expectancy

c) $r = -0.453$ the relation is weak.

d) male: $r_1 = -0.923$ female: $r_2 = -0.926$.
The relation is much closer than the correlation obtain in part c)

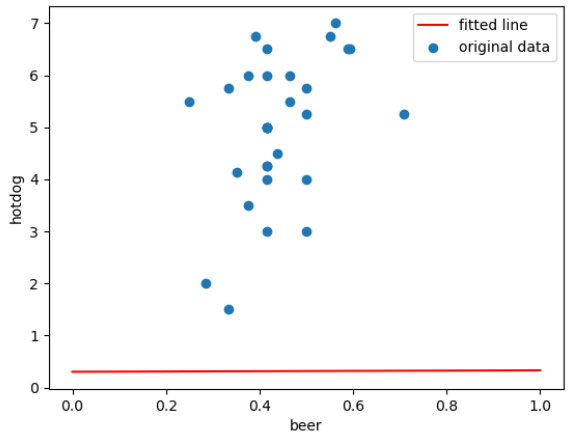
e) Yes. The life expectancy for male and for female different a lot.

Q6 a)



These two things have little relationship.

b).



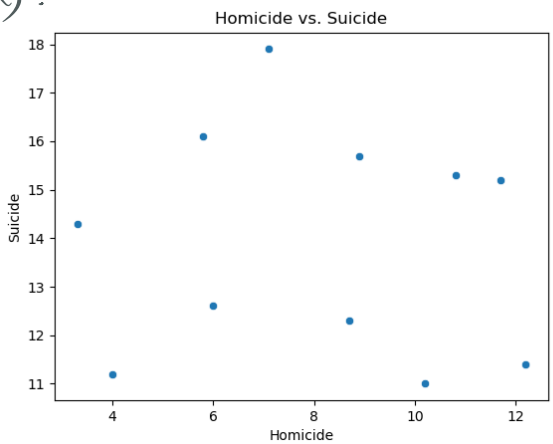
c) Positive relationship

d) 0.311 0.319. The difference is very little.

e) 16.9% of the variation in price of a hotdog is explained.
The relation is weak.

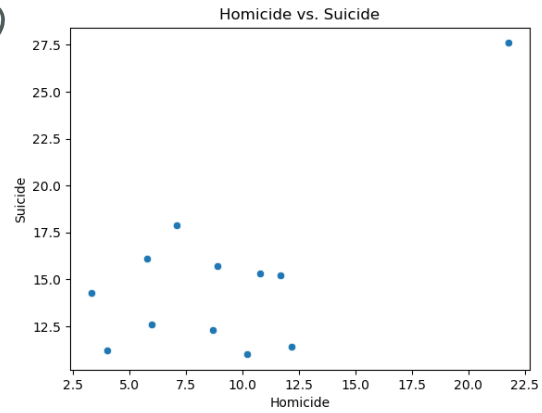
Q7 No. Because there might be other factor that would lead to weight gain. For example, the more often one go for fast food, he/she would consume more burgers and have more diet sodas. Consuming more burger could be the cause to gain weight.

Q8. a).

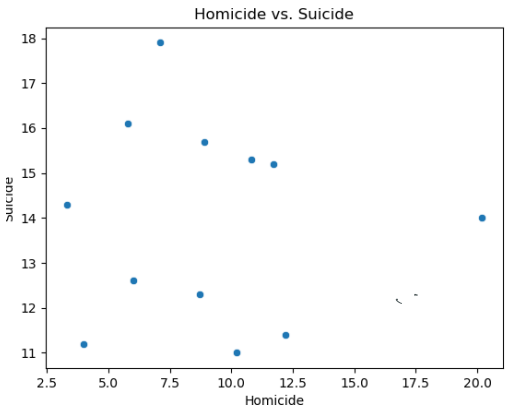


No relationship.

b)

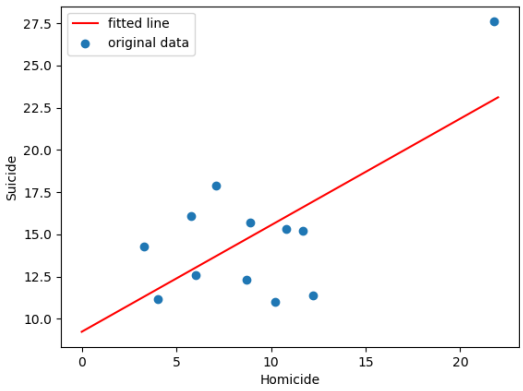


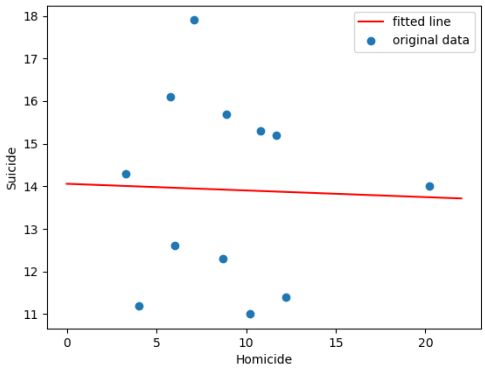
A: upper-right.



B: right side

c)





A influce the regression line more than B.
Because the new point introduce a new variable with a high value.