- **Causation:**
  one variable that is influenced by another

Ex. 1: In the 1990s, researchers found a strong positive relationship between the number of television sets per person x and the life expectancy y of the citizens in different countries. That is, countries with many TV sets had higher life expectancies.

a) Does this imply causation? No, there may be other things that influence life expectancy

b) By increasing the number of TVs in a country, can we increase the life expectancy of their citizens? No

c) Are there any hidden variables that may explain this strong positive correlation? more money → more health ins. better tech.

Ex. 2: Aura is taking her frinds to the movies for her birthday. There is a strong positive relationship between the number of movies tickets she buys and the amount of money she spends.

a) Is it reasonable to assume causation in this situation?

Yes, movie tickets all cost money

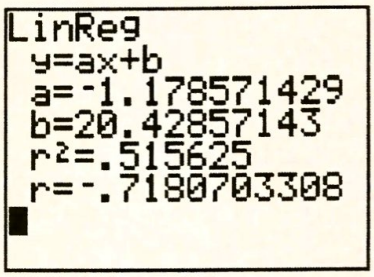
b) As Aura increases the number of movie tickets she purchases, does this cause her to spend more money?

Yes

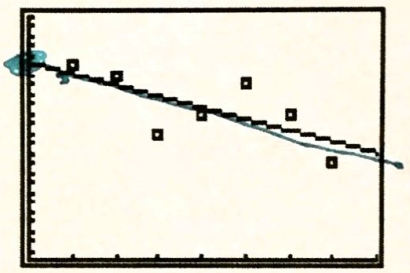
Ex. 3: A local university is keeping track of the number of art students who use the pottery studio each day.

Day	1	2	3	4	5	6	7
# of Students	20	19	13	15	18	15	10

a) Write the equation of the linear regression line for the situation.



b) What does the slope tell us about the story?



c) What does the y – intercept tell us about the story? On Day 0 there were approx 20.4 people using the studio.

d) Using you regression equation, predict how many students will use the pottery studio on day 13.

e) Identify the correlation coefficient for the situation.

f) Interpret the correlation coefficient. (Strength & Direction)