Unit 3, Lesson 9

What's the Correlation?

Let's reason about correlation of two variables in a situation.

9.1 Causation

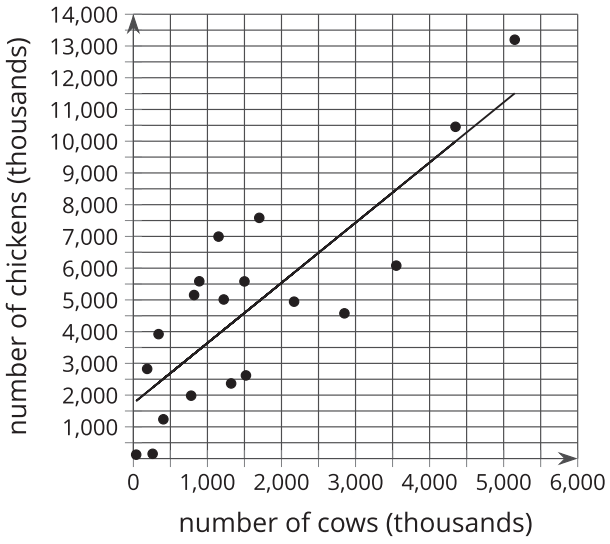
For each pair of variables, decide if one variable causes the other to change. Explain your reasoning to your partner.

1. the number of pictures painted and the amount of paint left in the paint can
2. the number of visits to the pool the summer before and the number of visits to the pool this summer
3. the distance run and the number of water breaks during the run

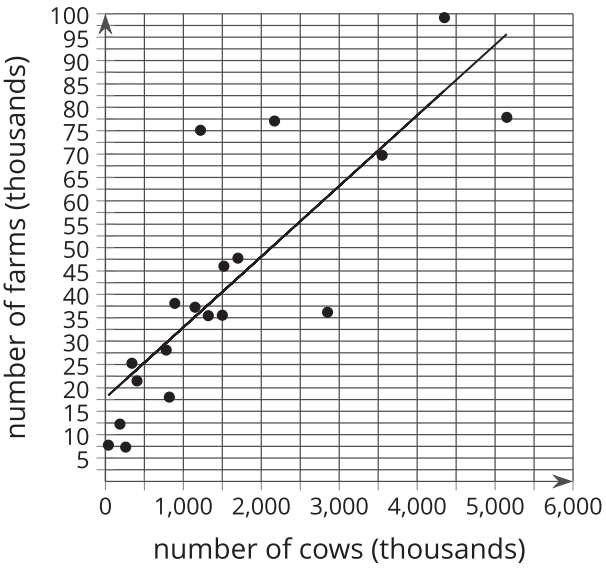
9.2 Correlation Relationships

For each pair of graphs, the linear model fits the data about the same. What do you notice about the variables? How might the variables be related?

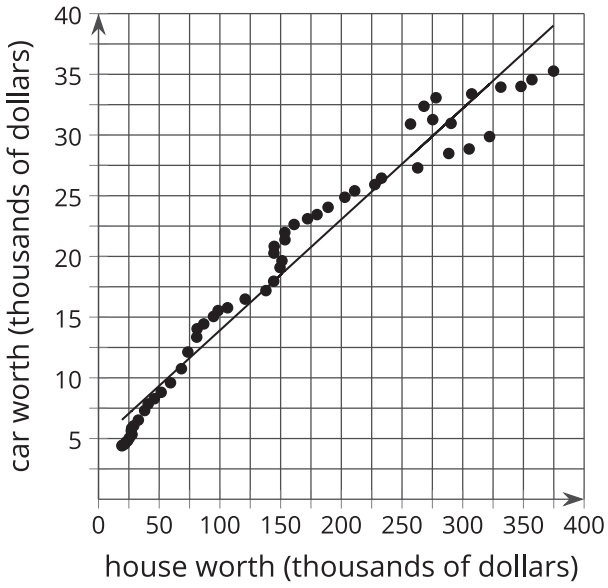
1. the number of cows in some states and the number of chickens in those same states



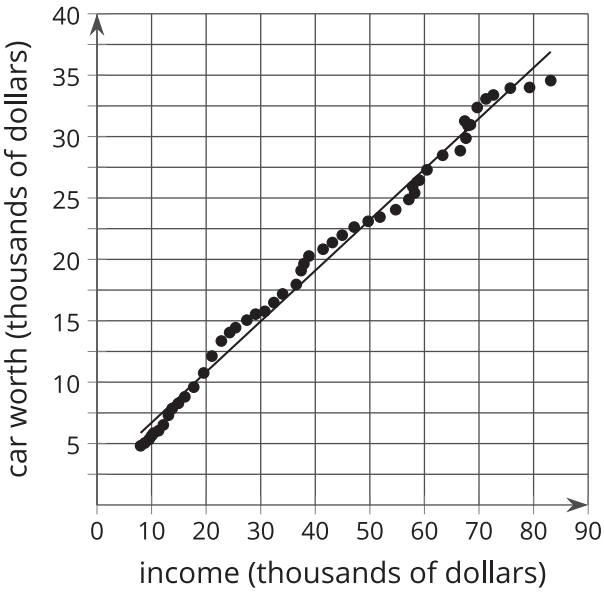
the number of cows in some states and the number of farms in those same states



2. the worth of a person's house and the worth of that same person's car



the worth of a person's car and their income



9.3 It Takes Two

Mai is training for the upcoming track season by running 8 laps around the school track each morning before school. She records her time to complete the 8 laps and notices that she is finishing faster and faster as time goes on. She also notices that she feels better in the morning and her grades in her first class are improving as her times improve.

1. Besides the 2 listed here, what other variables are changing in this situation?
   a. time to complete 8 laps

   b. number of mornings Mai has run 8 laps

   c.

   d.

2. Select 3 pairs of variables from the list. For each pair, determine if they are related, and then decide whether you think one variable causes the other to change. Explain your reasoning.
   a.

   b.

   c.