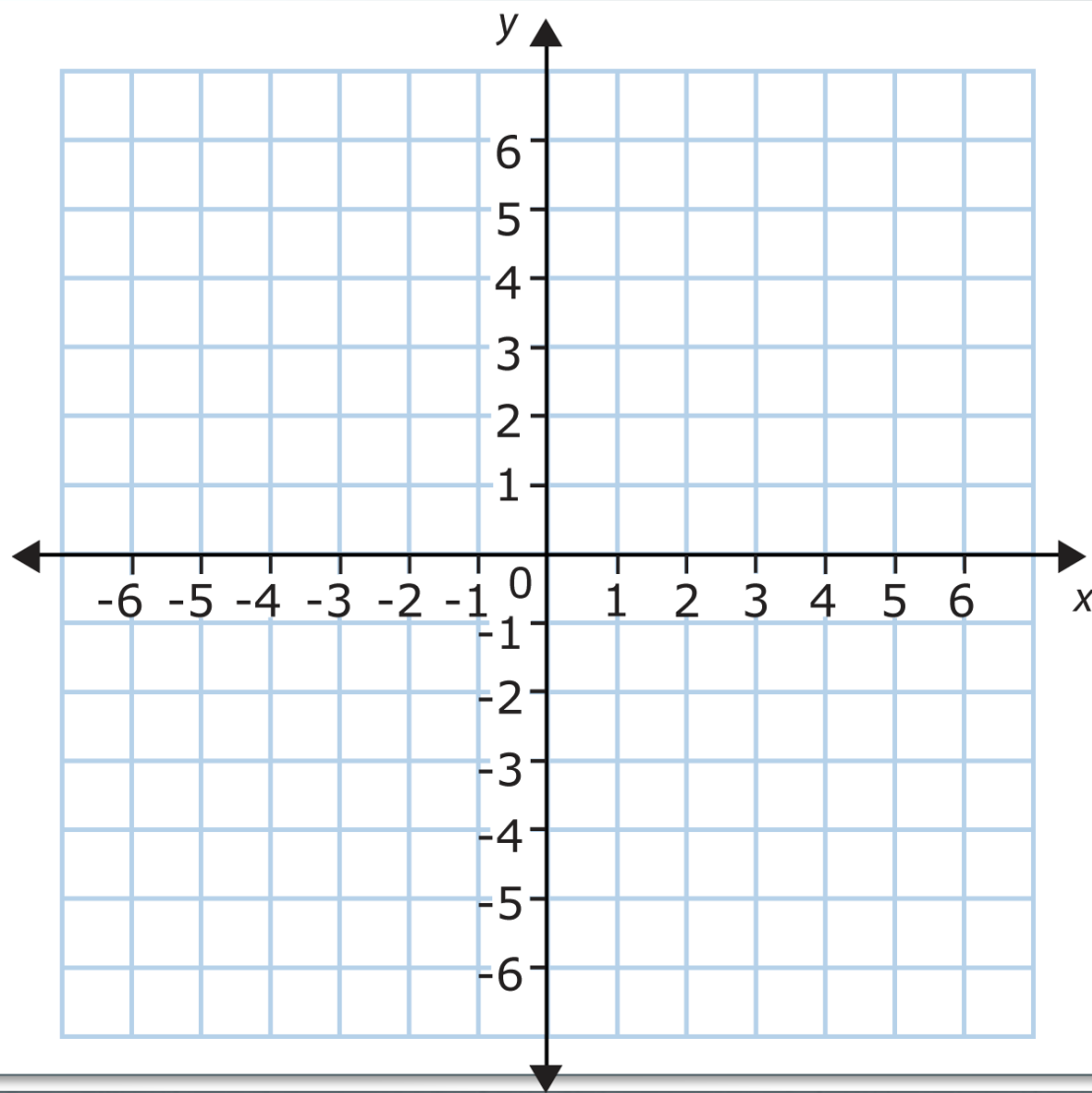# 8.11(A)

construct a scatterplot and describe the observed data to address questions of association such as linear, non-linear, and no association between bivariate data

INTERVENE

<1 min

Fluency Practice

Plot the following points:

A (3,4)

B (2,6)

C (-4,-2)

D (2, -3)

E (The Origin)

4 min

Problem Solving Strategies

- **1. Understand the Problem**
  - Read the problem carefully (at least 2 to 3 times)
  - Highlight important information (what do I know)
  - Identify Math Clue words (words that tell you what math operations you need to use)
  - Underline what you need to find

- **2. Plan of Action (how you will solve this problem in steps)**
  - First I will
  - Then I will
  - Next I will
  - Finally, I will

- **3. Show your work in steps (solve using your steps)**

- **4. Check your answer (does my answer make sense? why)**

<3 min

Linear Associations, Non-Linear Associations, and No Association

- **When you represent data on a scatterplot, you can visualize the number and find patterns**

- If there's an association, you'll know, because it'll look like a swarm of ants moving in the same direction and close together.

- If there's no association, it'll look like the ants are all scattered and running from a giant animal.

1 min

These both hav associations that look like they're moving in a line (linear)
One of them is moving upward (positive) and the other downward (negative)
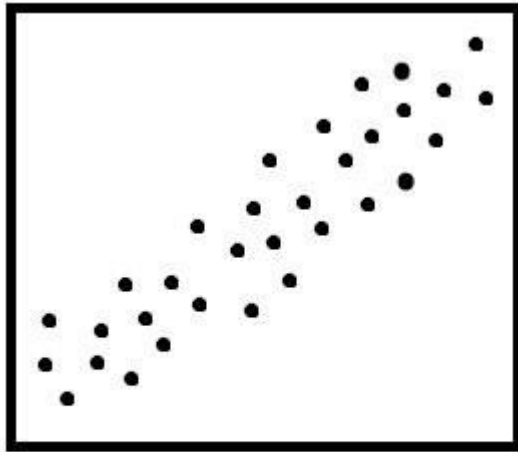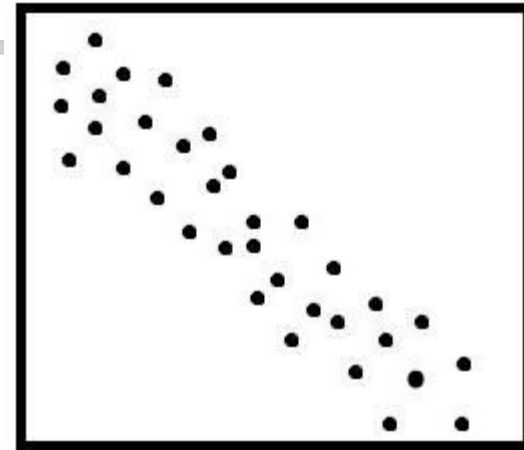

positive linear
association

Do you see how these dots are
moving upward in almost a line?
upward = positive.
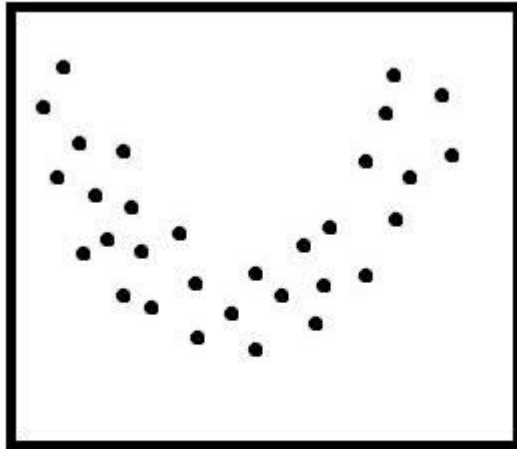line = linear.
positive linear

negative linear
association

Do you see how these dots are
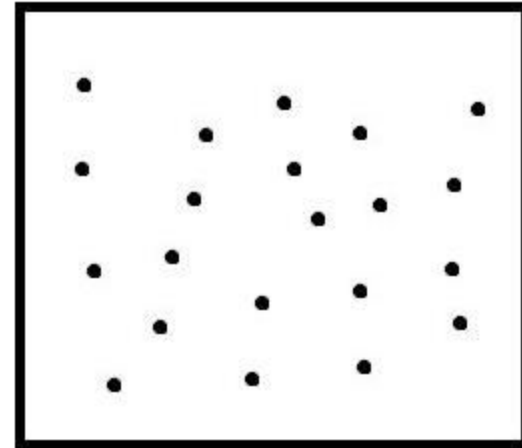moving downward in almost a line?
downward = negative.
line = linear.
negative linear

nonlinear association

no association

Do you see how these dots are moving together but not in a line?

not a line = nonlinear.
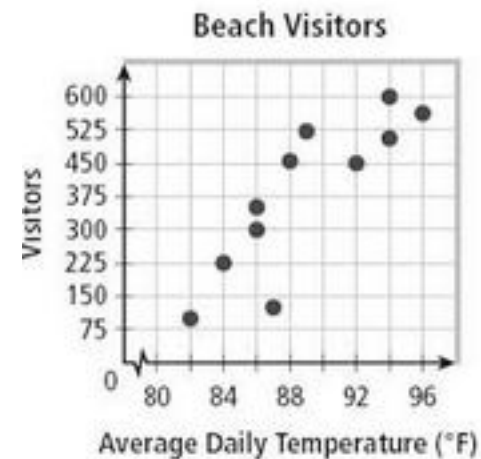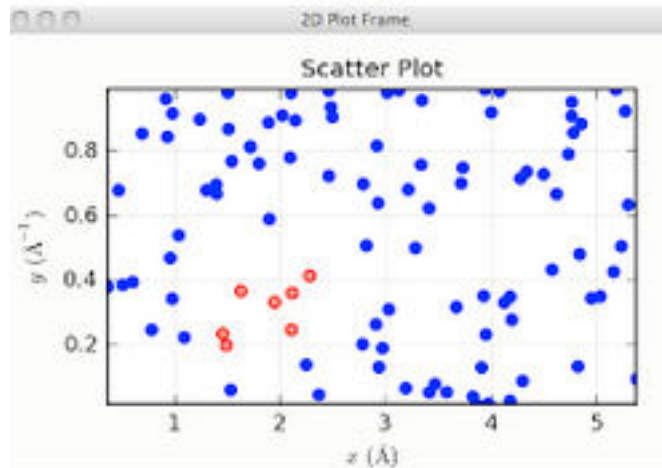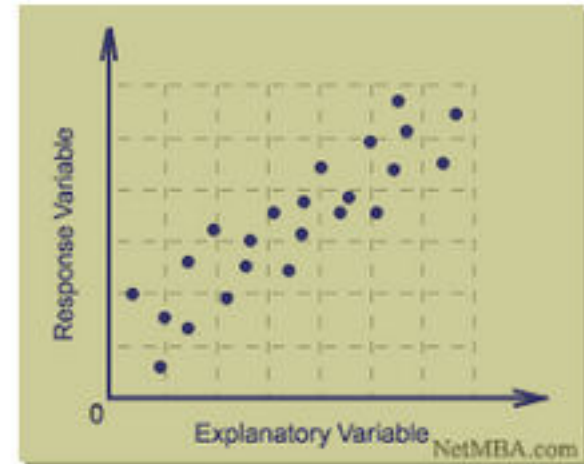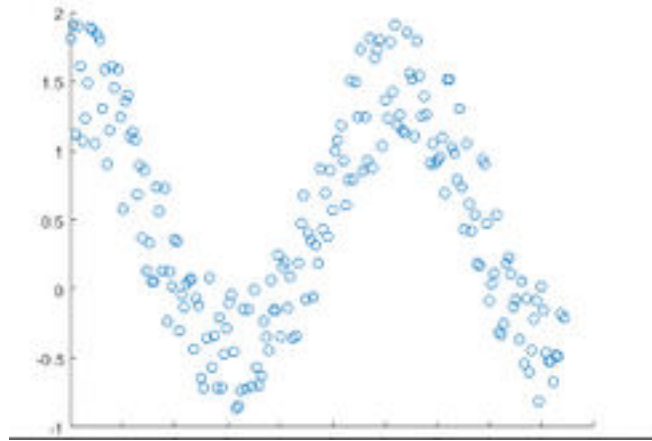moving together = association
non-linear assocation

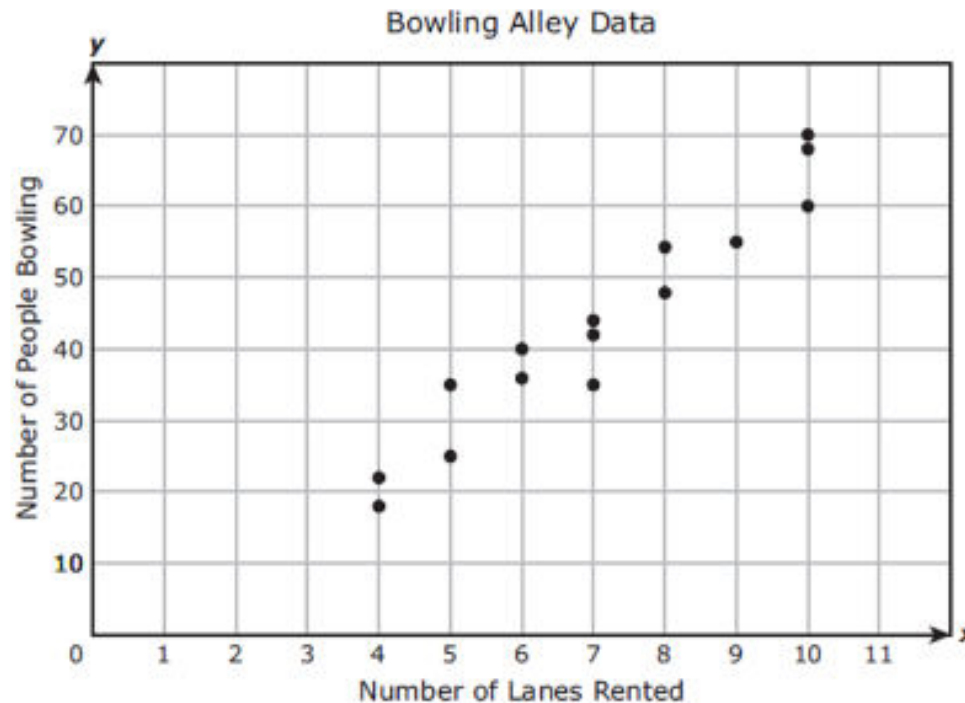Do you see how these dots look scattered? There's no pattern to be found here.

no association

Describe these scatterplots

The daily attendance at a bowling alley was recorded for 15 days. The scatterplot shows the number of lanes rented each day and the number of people who bowled that day.

Bowling Alley Data

Which statement is best supported by the scatterplot?

F   There is a non-linear association between the number of lanes rented and the number of people who bowl.

G   There is a negative linear association between the number of lanes rented and the number of people who bowl.

H   There is no apparent association between the number of lanes rented and the number of people who bowl.

J   There is a positive linear association between the number of lanes rented and the number of people who bowl.

We do - Question 1

Julie made 25 international long-distance phone calls to London last month. The scatterplot below shows the length and cost of each phone call she made.

Cost of International Long-Distance Phone Calls
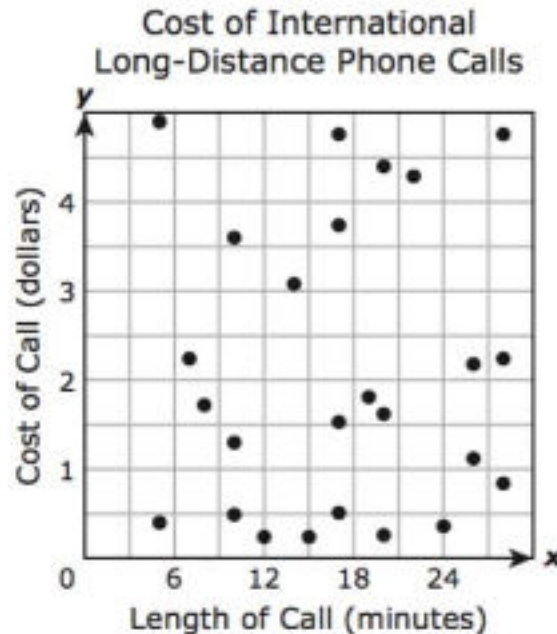
Which conclusion is best supported by the scatterplot?

A As the length of a call increases, the cost of the call increases.

B As the length of a call increases, the cost of the call remains the same.

C As the length of a call increases, the cost of the call decreases.

D There is no relationship between the length of a call and the cost of a call.

<5 min

The scatterplot shows the number of visitors to a beach each day and the high temperature in degrees Fahrenheit for that day.


Visitors to the Beach
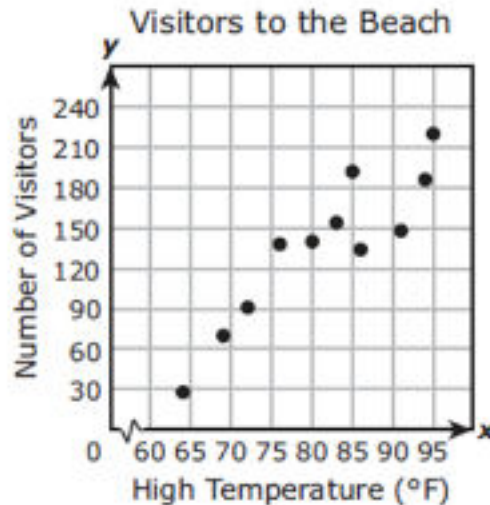
Based on this scatterplot, which statement appears to be true?

A There is a nonlinear correlation between the high temperature and the number of visitors to the beach.

B When the high temperature is above 100°F, fewer than 150 visitors are expected at the beach.

C There is no correlation between the high temperature and the number of visitors to the beach.

D When the high temperature is between 75°F and 90°F, more than 120 visitors are expected at the beach.

<5 min

The scatterplot shows the relationship between the distance that students traveled to get to school and the number of times those students were tardy during the school year.

Distance and Tardiness
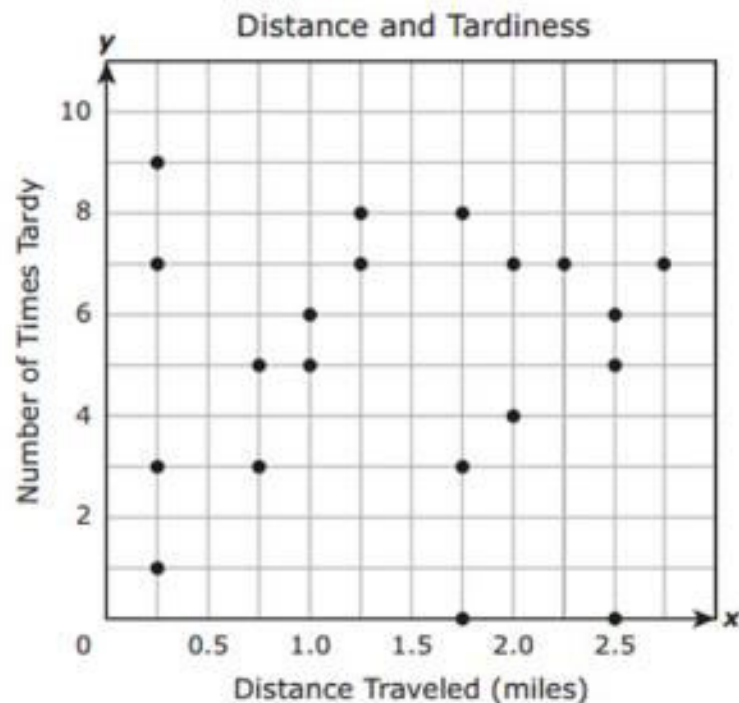
The principal of the school wants to use this information to help him determine if there is a correlation between distance traveled and the number of times tardy. Which statement is a reasonable conclusion that the principal could make?

A A student who travels 1.5 miles to get to school will be tardy 9 times during the school year.

B A student who travels more than 3 miles to get to school will be tardy at least 7 times during the school year.

C There is no correlation between the distance a student travels to get to school and the number of times the student will be tardy during the school year.

D There is a nonlinear correlation between the distance a student travels to get to school and the number of times the student will be tardy during the school year.
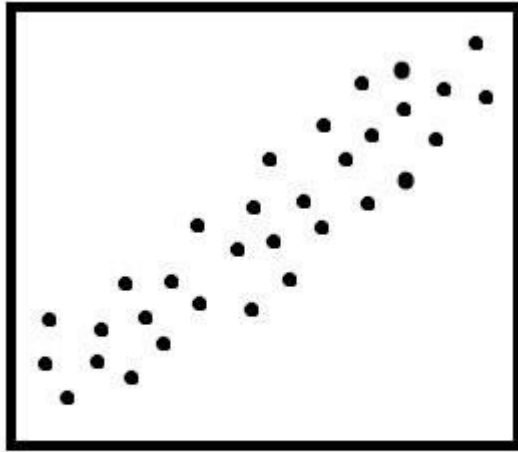
<5 min

A dentist made the scatterplot below to show the number of cavities her patients had as it relates to the number of times they flossed their teeth each week.

Cavities and Flossing
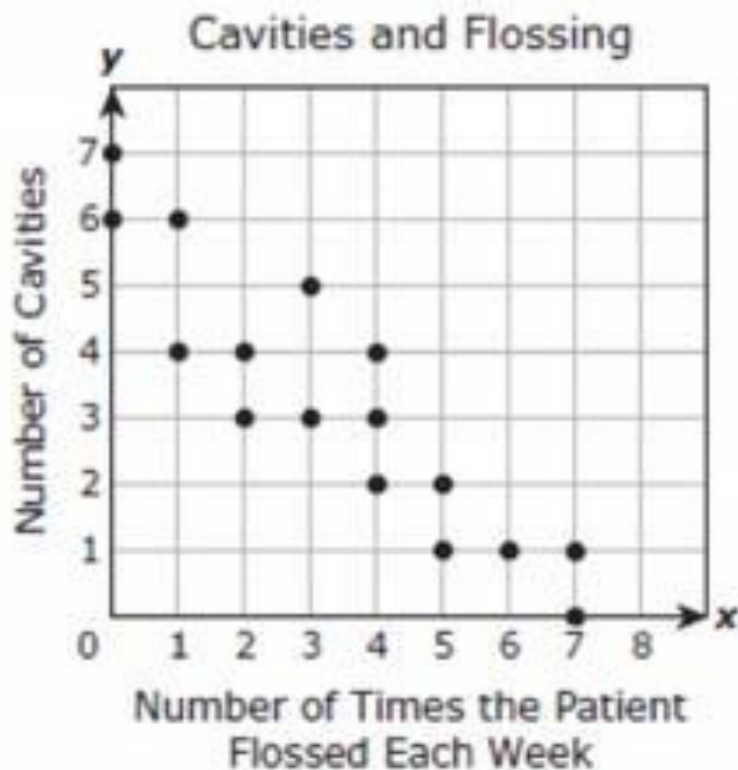
Which of the following best describes the correlation for the data?

A   Positive correlation

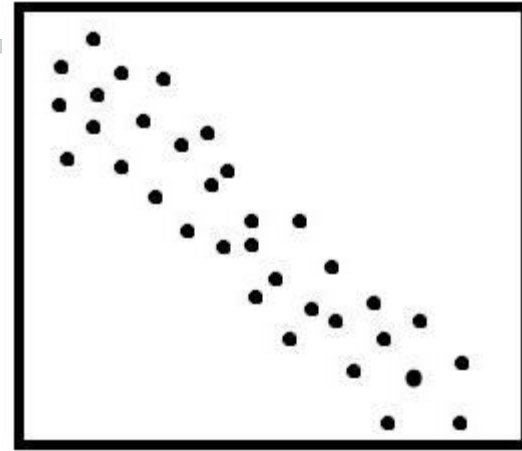B   Nonlinear correlation

C   Negative correlation

D   No correlation

positive linear association

Do you see how these dots are moving upward in almost a line?
upward = positive.
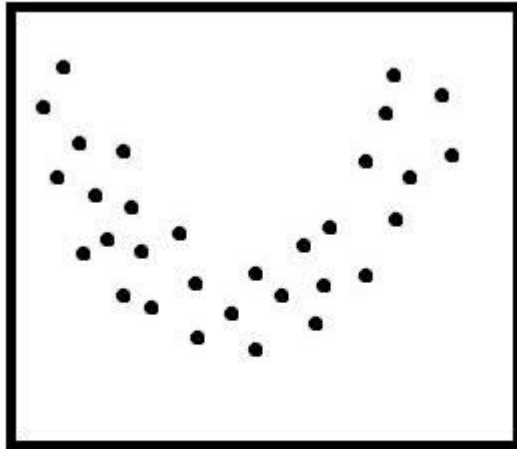line = linear.
positive linear

negative linear association

Do you see how these dots are moving downward in almost a line?
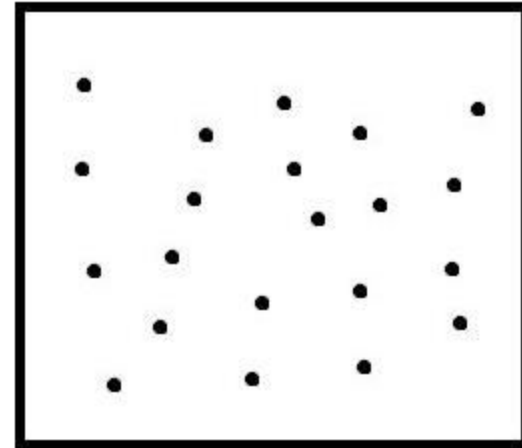downward = negative.
line = linear.
negative linear

nonlinear association

no association

Do you see how these dots are moving together but not in a line?

not a line = nonlinear.
moving together = association
non-linear assocation

Do you see how these dots look scattered? There's no pattern to be found here.

no association

You Do

- Go back to Intervene to take your quiz!

Answer Key

- I Do: J

- We Do 1: D

- We Do 2: D

- We Do 3: C

- We Do 4: C