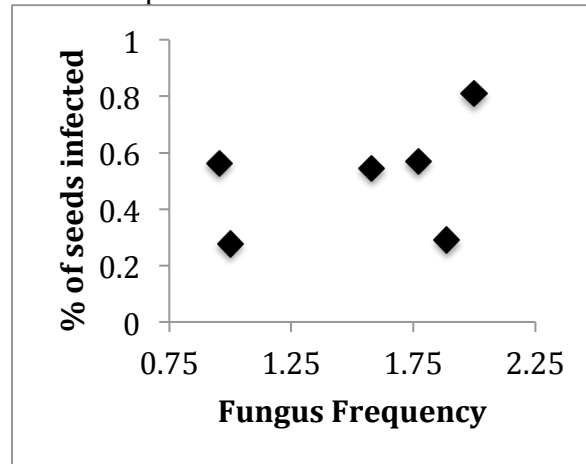


Name: _____

Part 1. Fungus in Panama. Last summer, Mr. Stump did an experiment in Panama, to study how seeds can defend themselves against fungus. He exposed seeds to 6 different species of fungus, and saw what fractions of the seeds were infected by each fungus. He wanted to test the following hypothesis:

Hypothesis 1: Common fungi are better able to infect seeds.

Here are the results of Mr. Stump's research:



Here, "Frequency" means how common a fungus is (so, 2 means very common, and 1 means rare).

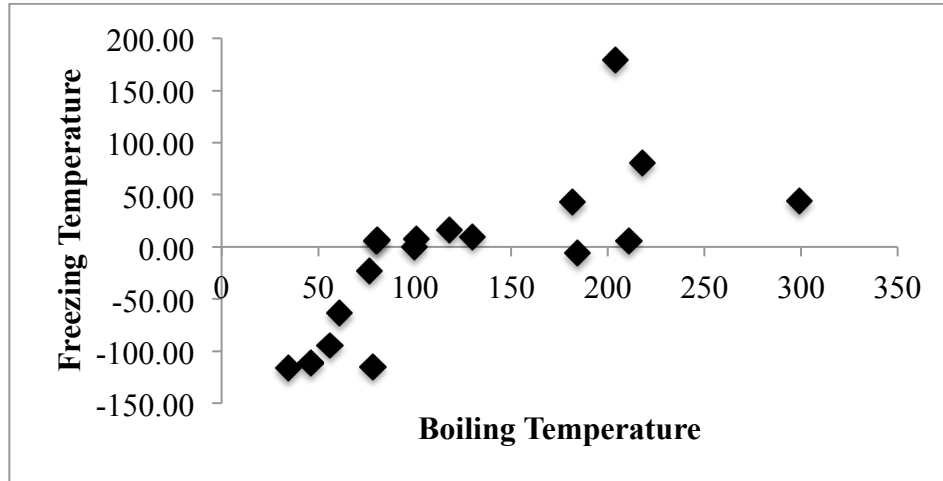
Questions:

- 1) Take a guess: What do you think each point represents?
- 2) Is this a positive association, a negative association, or no association?
- 3) Is the hypothesis supported, or not? Why do you say that?

Part 2. Melting and Boiling Temperature. You would like to test the following hypothesis:

Hypothesis 2: Chemicals with a high freezing temperature will also have a high boiling temperature.

Wikipedia lists the boiling and freezing temperatures of many chemicals. It looks like this:



Questions:

1) Water has a boiling temperature of 100°C, and a freezing temperature of 0°C. Write this as an (X,Y) coordinate, and circle the point on the above graph that represents water.

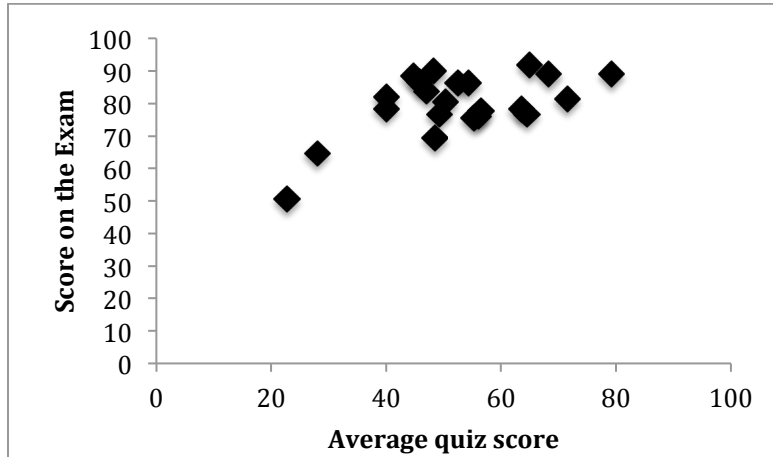
2) Is this a positive association, a negative association, or no association?

3) Is the hypothesis supported, or not? Why do you say that?

4) Does this scatterplot have any outliers or clumps?

Part 3. Exams. Last year, Mr. Stump taught a class called Herpetology. He gave a quiz every week, and an exam. He wanted to test the following hypothesis:
Hypothesis 3- Students who do well on the quizzes will do well on the exam.

Here are his results:



Questions:

1) Is this a positive association, a negative association, or no association?

2) Is the hypothesis supported, or not? Why do you say that?

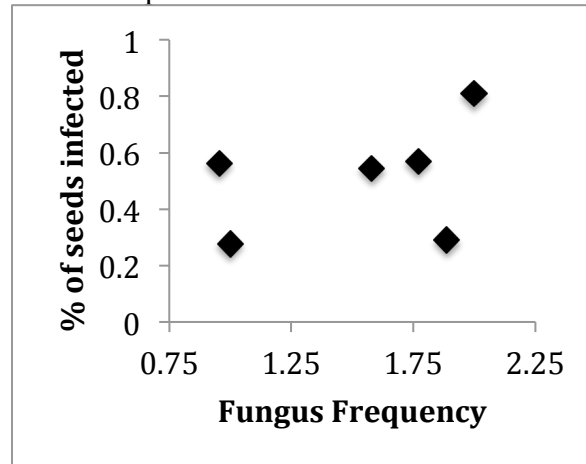
3) Does this scatterplot have any outliers or clumps?

ANSWER KEY

Part 1. Fungus in Panama. Last summer, Mr. Stump did an experiment in Panama, to study how seeds can defend themselves against fungus. He exposed seeds to 6 different species of fungus, and saw what fractions of the seeds were infected by each fungus. He wanted to test the following hypothesis:

Hypothesis 1: Common fungi are better able to infect seeds.

Here are the results of Mr. Stump's research:



Here, “Frequency” means how common a fungus is (so, 2 means very common, and 1 means rare).

Questions:

1) Take a guess: What do you think each point represents?

Each point is a species of fungus, and where it is tells you its infection rate and its frequency.

2) Is this a positive association, a negative association, or no association?

This is arguably either positive or no association.

3) Is the hypothesis supported, or not? Why do you say that?

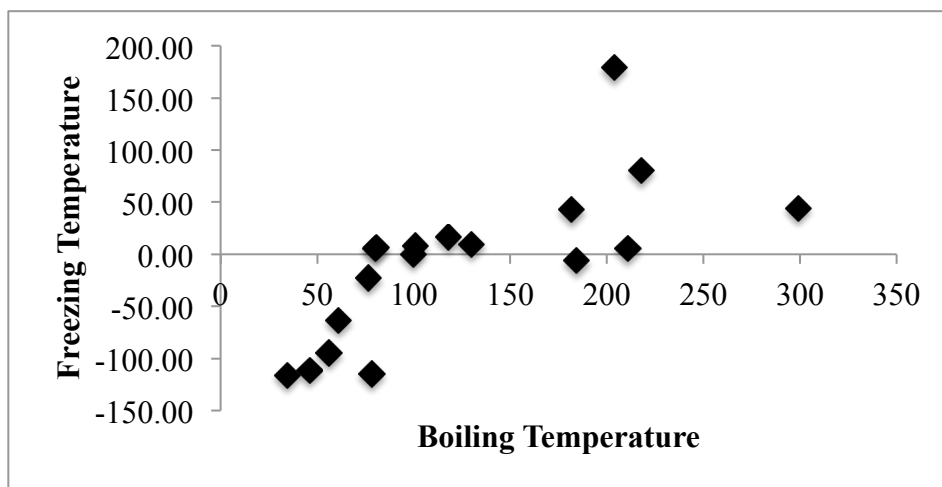
If they said the slope was positive, then it means the hypothesis was supported. If there was no association, it was not.

ANSWER KEY

Part 2. Melting and Boiling Temperature. You would like to test the following hypothesis:

Hypothesis 2: Chemicals with a high freezing temperature will also have a high boiling temperature.

Wikipedia lists the boiling and freezing temperatures of many chemicals. It looks like this:



Questions:

1) Water has a boiling temperature of 100°C, and a freezing temperature of 0°C. Write this as an (X,Y) coordinate, and circle the point on the above graph that represents water.

2) Is this a positive association, a negative association, or no association?

Positive.

3) Is the hypothesis supported, or not? Why do you say that?

Yes.

4) Does this scatterplot have any outliers or clumps?

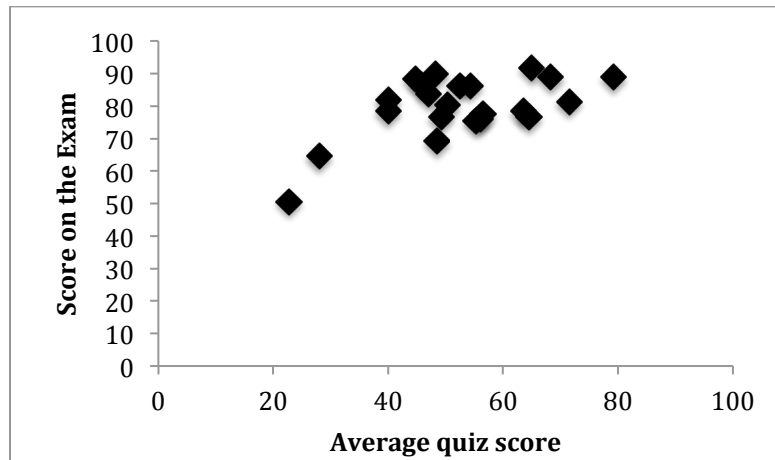
The point at (200, 200) is a bit of an outlier, and maybe (300, 50). However for the most part, everything is clearly on the line.

ANSWER KEY

Part 3. Exams. Last year, Mr. Stump taught a class called Herpetology. He gave a quiz every week, and an exam. He wanted to test the following hypothesis:

Hypothesis 3- Students who do well on the quizzes will do well on the exam.

Here are his results:



Questions:

1) Is this a positive association, a negative association, or no association?

Positive.

2) Is the hypothesis supported, or not? Why do you say that?

Yes.

3) Does this scatterplot have any outliers or clumps?

There are two outliers (the two really lows scores) and one big clump.

It may be worth pointing this out: If you eliminate the two outlier scores, then there is no longer a positive association. You can ask them what they think that means.