

Regents Review Packet #3

Created for you by Ms. Nholsoybank

Definition:

A **causal relationship** is one in which a change in one of the variables directly causes a change in the other variable.

1.) Which relationship can best be described as causal?

- 1) height and intelligence
- 2) shoe size and running speed
- 3) number of correct answers on a test and test score
- 4) number of students in a class and number of students with brown hair

2.) A study showed that a decrease in the cost of carrots led to an increase in the number of carrots sold. Which statement best describes this relationship?

- 1) positive correlation and a causal relationship
- 2) negative correlation and a causal relationship
- 3) positive correlation and not a causal relationship
- 4) negative correlation and not a causal relationship

3.) Which situation describes a correlation that is not a causal relationship?

- 1) the length of the edge of a cube and the volume of the cube
- 2) the distance traveled and the time spent driving
- 3) the age of a child and the number of siblings the child has
- 4) the number of classes taught in a school and the number of teachers employed

Name: Key
May 10 - Algebra II

WILL BE GRADED

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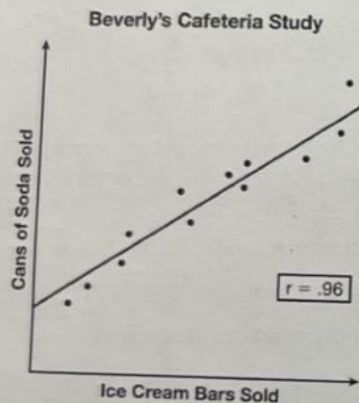
Directions:

Please use a highlighter to check your answers. Bring your questions to class or review sessions.

4.) What type of relationship exists between the number of pages printed on a printer and the amount of ink used by that printer?

- 1) positive correlation, but not causal
- 2) positive correlation, and causal
- 3) negative correlation, but not causal
- 4) negative correlation, and causal

5.) Beverly did a study this past spring using data she collected from a cafeteria. She recorded data weekly for ice cream sales and soda sales. Beverly found the line of best fit and the correlation coefficient, as shown in the diagram below.



Given this information, which statement(s) can correctly be concluded?

- I. Eating more ice cream causes a person to become thirsty.
- II. Drinking more soda causes a person to become hungry.
- III. There is a strong correlation between ice cream sales and soda sales.

- 1) I, only
- 2) III, only
- 3) I and III
- 4) II and III

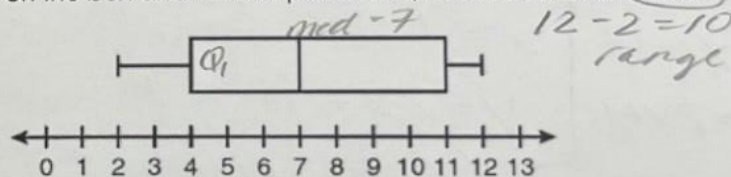
6) The term "snowstorms of note" applies to all snowfalls over 6 inches. The snowfall amounts for snowstorms of note in Utica, New York, over a four-year period are as follows:

7.1, 9.2, 8.0, 6.1, 14.4, 8.5, 6.1, 6.8, 7.7,
21.5, 6.7, 9.0, 8.4, 7.0, 11.5, 14.1, 9.5, 8.6

What are the mean and population standard deviation for these data, to the nearest hundredth?

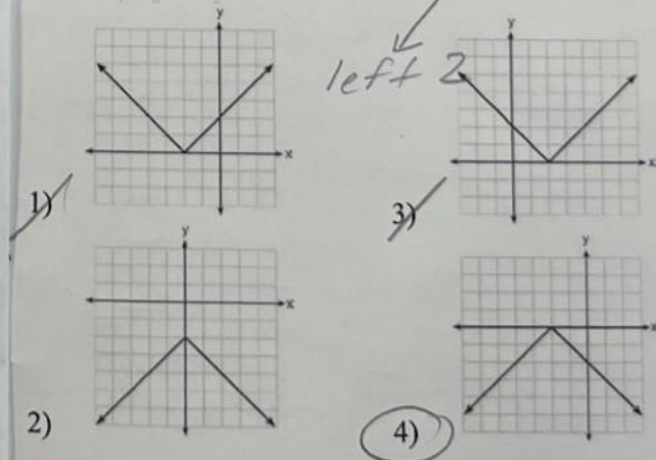
mean = 9.46; standard deviation = 3.74

7) Based on the box-and-whisker plot below, which statement is false?



- 1) The median is 7. ✓
- 2) The range is 12.
- 3) The first quartile is 4. ✓
- 4) The third quartile is 11. ✓

Which graph represents $y = -|x + 2|$?



2)

4)

9.) Solve the following system of equations algebraically.

$$y = x^2 + 4x - 2$$

$$y = 2x + 1$$

$$\begin{array}{r} x^2 + 4x - 2 = 2x + 1 \\ -2x - 1 \quad -2x - 1 \\ \hline \end{array}$$

$$x^2 + 2x - 3 = 0$$

$$(x + 3)(x - 1) = 0$$

$$x = -3 \quad x = 1$$

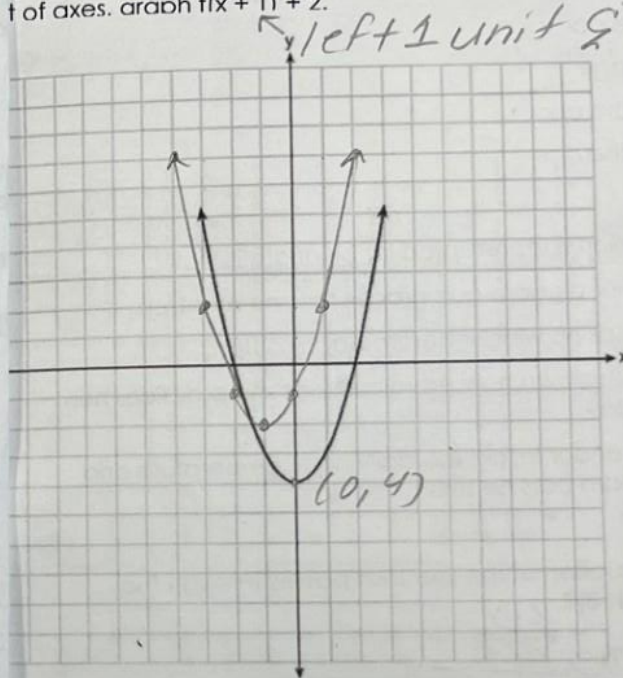
$$y = 2x + 1 \quad y = 2x + 1$$

$$y = 2(-3) + 1 \quad y = 2(1) + 1$$

$$y = -5 \quad y = 3$$

$$(-3, -5) \quad (1, 3)$$

10.) The function $f(x)$ is graphed on the set of axes below. On the same set of axes, graph $f(x + 1) + 2$.



1.) Write the equation of the function shown on the graph in #10 in vertex form and standard form.

vertex form: $f(x) = x^2 - 4$

standard form: $f(x) = x^2 - 4$

12.) Tyler sees an advertisement for a car in a newspaper. Which information would not be classified as quantitative?

- 1) the cost of the car
- 2) the car's mileage
- 3) the model of the car
- 4) the weight of the car

13.) Which situation is represented by bivariate data?

- 1) A student lists her algebra quiz grades for one month.
- 2) A wrestler records his weight before each match.
- 3) A musician writes down how many minutes she practices her instrument each day.
- 4) An ice cream vendor tracks the daily high temperature and how many ice cream bars he sells each day.

14.) What is an equation of the line that passes through the points (2, 7) and (-1, 3)?

- | | |
|----|---|
| X | Y |
| 2 | 7 |
| -1 | 3 |
- 1) $y - 2 = \frac{3}{4}(x - 7)$
- 2) $y - 2 = \frac{4}{3}(x - 7)$ $m = \frac{-4}{-3} = \frac{4}{3}$
- 3) $y - 7 = \frac{3}{4}(x - 2)$
- 4) $y - 7 = \frac{4}{3}(x - 2)$

15.) Rationalize: $\frac{3}{2\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = \frac{3\sqrt{6}}{2 \cdot 6}$

$= \frac{3\sqrt{6}}{12} \rightarrow \frac{\sqrt{6}}{4}$

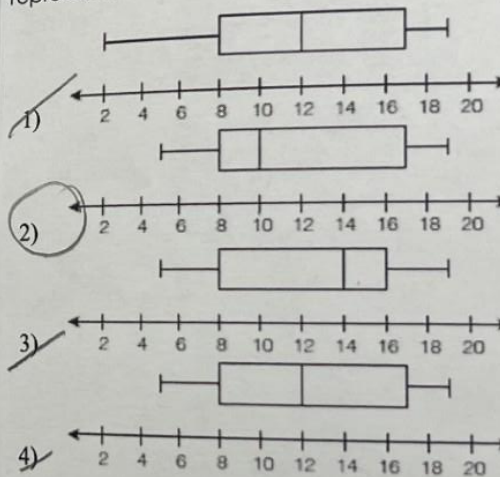
16.) The ages of ten math teachers at Bellport Middle school are: 50, 27, 36, 40, 36, 38, 38, 29, 36, 49

Determine the standard deviation of these ages to the nearest tenth.

$\sigma x = 6.9$

17.) The data set 5, 6, 7, 8, 9, 9, 9, 10, 12, 14, 17, 17, 18, 19, 19 represents the number of hours spent on the Internet in a week by students in a mathematics class. Which box-and-whisker plot represents the data?

min = 5
 $Q_1 = 8$
 $Q_2 \text{ med} = 10$
 $Q_3 = 17$
 max = 19



18.) Which situation is an example of bivariate data?

- 1) the number of pizzas Tony eats during his years in high school
- 2) the number of times Gavin puts air, in his bicycle tires during the summer
- 3) the number of home runs Evan hits per game and the number of hours he practices baseball
- 4) the number of hours Caitlin studies for her mathematics tests during the first half of the school year