Grade 8 Mathematics EOG (GSE) Quiz Answer Key
Statistics and Probability - (MGSE8.SP.1 ) Construct/interpret Scatter Plots

Student Name: ___________________________ Date: ___________
Teacher Name: THUYNGA DAO Score: ___________

1)

Money Spent at Gift Shop

About how many people spent $200 at the gift shop?

A) 10
B) 20
C) 30
D) 40

Explanation:
The solution is **30**. Looking at the graph we see that about 30 people spent $200.

2)

Describe the correlation of the scatterplot.

A) no correlation
B) prime correlation
C) positive correlation  
D) negative correlation  

Explanation:  
The solution is negative correlation. The slope of the line of best fit is negative, therefore, the correlation is negative.

3)  
The graph displays the total cost when buying gas by the gallon. Which statement best describes the relationship between cost and amount of gas purchased?

A) The more gas you buy, the more it costs.  
B) The less gas you buy, the more it costs.  
C) The more gas you buy, the less it costs.  
D) The less gas you buy, the less it costs.

Explanation:  
Since both the x and y values are increasing the relationship is positive. Therefore the correct statement is the more gas you buy, the more it costs.

4) Which scatterplot shows a negative correlation?
Explanation:
The solution is D. If you draw a line of best fit, you can see that the slope is negative. Therefore, the correlation is negative.
5)

The graph shows the stock value for a technology company from 2002 to 2005. From this graph, what is the most likely value of the stock for the year 2000?

A) $0

B) $10

C) $20

D) $30

Explanation:
The solution is $10. From 2002-2005 the stock value increases $10 each year. Based on this pattern we see that the most probable value for 2000 is $10.

6)

The scatterplot shows the data collected from a survey of 19 students, in which they were asked how many hours per week they study (x) and what their GPAs are (y). What relationship, if any, is shown between the two sets of data?

A) There is no correlation between them.

B) There is a positive correlation between them.

C) There is a negative correlation between them.

D) There is an indirect correlation between them.
**Explanation:**

There is a positive correlation between them. Since the points on the graph tend to rise from left to right, the correlation is positive.

7)

Sarah’s younger siblings are always bothering her when she does her homework, and she begins to wonder whether other students have the same trouble. She surveys 25 of her fellow juniors and records the number of siblings and the homework grades for each of them.

According to the scatterplot Sarah produced from this data, which conclusion is MOST justified? [Note: x is the number of siblings, y is the homework grade.]

A) Siblings have a mixed effect on homework performance.
B) Siblings have a positive effect on homework performance.
C) Siblings have a negative effect on homework performance.
D) Siblings have little or no effect on homework performance.

**Explanation:**

Siblings have a negative effect on homework performance. Notice that as x increases y decreases, which indicates a negative correlation.

8)

What type of relationship does there appear to be between the day of the week and the number of newspapers sold?
A) no relationship  
B) quadratic relationship  
C) exponential relationship  
D) positive linear relationship  

**Explanation:**  
There is **no relationship** since you cannot find a pattern between the x and y’s.
Adam has the scatterplot shown for his data set, where snowfall is measured in inches, and he is trying to describe the line of best fit.

Which choice correctly describes the line of best fit?

A) As the amount of snow decreases, the number of accidents decreases.
B) As the amount of snow decreases, the number of accidents increases.
C) As the amount of snow increases, the number of accidents increases.
D) There is no relationship between snowfall and the number of accidents.

Explanation:
There is a relationship between snowfall and accidents since it forms a pretty linear pattern. Since the line of best fit has a positive slope you know that both snowfall and accidents must be increasing. The correct interpretation is As the amount of snow increases, the number of accidents increases.

10)

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Scientists believe there is a link between ambient temperature and damage to a head gasket on a car. Using the provided information, draw a scatterplot of the data.

If the forecast was for temperatures at 5° Celsius, what recommendation would you give to a truck driver who wanted to leave on a trip? Justify your recommendation.

A) I would recommend that he goes as there were many more temperatures with no damage than with damage.
B) I would recommend that he goes as lower temperatures have a strong positive correlation, therefore the lower the temperature the less damage is caused.
C) I would recommend that he does not go as lower temperatures have a strong negative correlation, therefore the lower the temperature the more damage is caused.
D) I would recommend that he does not go as higher temperatures have a strong positive correlation therefore the higher the temperature the more damage is caused.

Explanation:
The correct answer is I would recommend that he does not go as lower temperatures have a strong negative correlation, therefore the lower the temperature the more damage is caused. For temperatures below 19 degrees Celsius the scatterplot forms a negative correlation.
11) This graph shows the points scored by a basketball team's star player and the total points scored by the team over a 5 game interval. What can you conclude about the relationship between these two variables?

A) The team scored the most points when the player scored 31 points.
B) As the player's scoring increases, the team's scoring decreases.
C) As the player's scoring increases, so does the team's scoring.
D) There is no obvious relationship between the player's scoring and the team's scoring.

**Explanation:**
The graph shows it clearly: **as the player's scoring increases, the team's scoring decreases.**

12) The graph displays the relationship between feet and yards. Determine the number of feet per yard.

A) 3  
B) 6  
C) 2  
D) \(\frac{1}{6}\)

**Explanation:**
The ratio of feet per yard is also represented by the change in feet/change in yards; \((6 - 0)/(2 - 0) = 3 \text{ feet per yard}.\)
Judging from this scatter plot, what kind of relationship does there seem to be between the time between eruptions and the length of the eruptions?

A) weak linear  
B) strong linear  
C) weak quadratic  
D) strong quadratic

**Explanation:**
There seems to be a **strong linear** relationship. Linear, because it is one-directional; strong, because the points are closely gathered toward a line.
What type of relationship does there appear to be between the number of soft drinks consumed per week and the age of the consumer?

A) no relationship  
B) quadratic relationship  
C) exponential relationship  
D) positive linear relationship  

**Explanation:**

As the age of the consumer increases so does the number of soft drinks. It appears that they increase at a constant rate. Therefore, the relationship is a **positive linear relationship**.
15) The owner of Ray’s Deli wants to find out if there is a relationship between the temperature in summer and the number of glasses of lemonade he sells. From the data shown in this scatter plot, you can tell that the

A) hotter the temperature, the more lemonade was sold.
B) cooler the temperature, the more lemonade was sold.
C) most lemonade was sold when temperatures were above 90°F.
D) data shows no relationship between temperature and lemonade sales.

Explanation:
There is no correlation between temperature and lemonade sales. Sometimes two variables are not related. The data shows no relationship between temperature and lemonade sales.

16) The graph shows the relationship between the number of cars horns Sally heard and the amount of time that has passed since midnight. She has no data for 11 hours after midnight. According to the scatterplot, about how many car horns did she hear at that time?

A) 22
B) 24
C) 26
D) 28
4/5/2016

Explanation:
Look for 11 on the x-axis and find the y-value that would fit the data. 11 hours after midnight Sally heard about 24 car horns.

17)

Mike owns two hardware stores. The scatterplots show the number of items sold at a specific price for each store for one week. Which store has more sales revenue ($$)?

A) Store #1
B) Store #2
C) The stores bring in the same amount of sales.
D) This cannot be determined from the scatterplots.

Explanation:
Although, store #2 sells more high priced items, Store #1 brings in higher sales. Store #1 sells a large amount of low priced items. This large volume of items is enough to bring in more sales than the store that sells less higher priced items. Store #1 sells about $35,300 and store #2 sells about $29,200.
Data from Previous Truck Head Gaskets

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Scientists believe there is a link between ambient temperature and damage to a head gasket on a car. Using the provided information, draw a scatterplot of the data.

Based on the information, what might the approximate damage index be if the temperature was 10° Celsius?

A) 5  
B) 7  
C) 10  
D) 13

**Explanation:**
The correct answer is 13. The lower temperatures have a negative correlation so the lower the temperature the higher the damage index. Therefore a temperature of 10° Celsius should have a damage index higher than that of 12° Celsius so the only option is 13.
The scatterplot shown compares the price of gasoline (in dollars) and the number of hybrid cars sold (in thousands) in Georgia.

Describe the relationship between price of gasoline and number of hybrid cars sold.

A) There is no correlation.
B) There is a positive linear correlation.
C) There is a negative linear correlation.
D) There is a non-linear relationship.

Explanation:
The correct answer is There is a non-linear relationship. As the price of gas has increased more and more hybrid cars are being sold. There is a curve to the data indicating a non-linear relationship.
What type of relationship does there appear to be between price of gas and number of hybrid cars sold?

A) no relationship
B) quadratic relationship
C) exponential relationship
D) positive linear relationship

**Explanation:**
As the price of gas increases then the number of hybrid cars sold also increased, but they did not increase at a constant rate. Therefore, the relationship is an **exponential relationship**

21)

### Data from Previous Truck Head Gaskets

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Scientists believe there is a link between ambient temperature and damage to a head gasket on a car. Using the provided information draw a scatterplot of the data.

Describe the correlation for temperatures less than $20^\circ$ Celsius

A) There is no correlation.
B) There is a nonlinear correlation.
C) There is a weak negative correlation.
D) There is a strong negative correlation.

Explanation:
The correct answer is **There is a strong negative correlation**. As the temperature decreases the damage index increases causing a negative correlation.
22) The graph shows number of tickets a person has received versus the number of accidents they have been in. If the trend continues, how many accidents would a person who has received 10 tickets be in?

A) 5  
B) 7  
C) 10  
D) 12  

Explanation:
If you had a line to model the data the slope is approximately $\frac{1}{2}$, meaning that for each accident they have been in they have received 2 tickets. A line to model this data could be $y = \frac{1}{2}x + 2$. If you plug in 10 for $x$ you could predict that they would have been in 7 accidents.

23) Data which consists of pairs of values or responses is called

A) univariate.  
B) bivariate.  
C) direct.  
D) indirect.  

Explanation:
It is bivariate.

24)
The scatter plot represents the weight of a car and its gas mileage. Based on the data presented, which statement is true?

A) The lightest car gets the best gas mileage.
B) The heaviest car gets the worst gas mileage.
C) Gas mileage decreases with an increase in car weight.
D) Gas mileage decreases with a decrease in car weight.

Explanation:
Gas mileage decreases with an increase in car weight. Look from left to right.

25) Which type of data deals with causes and/or relationships?
A) bivariate
B) categorical
C) quantitative
D) univariate

Explanation:
Bivariate data deals with two variables and looks for causes and/or relationships.

26)
What type of data is represented in this scatterplot?

A) bivariate
B) direct
C) indirect
D) univariate

Explanation:
It is bivariate, since it consists of pairs of values.