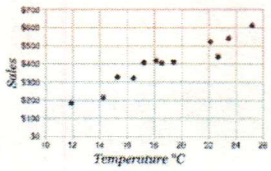
AGS 1 Name: _____ Per: _____

Unit 4b Review - Statistics

Give the correlation direction and strength for each scatter plot.

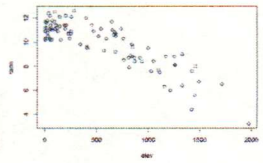
1.



Direction: positive

Strength: strong

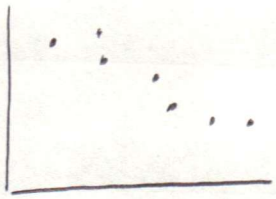
2.



Direction: negative

Strength: moderate

3. Draw a scatter plot with a strong negative correlation.



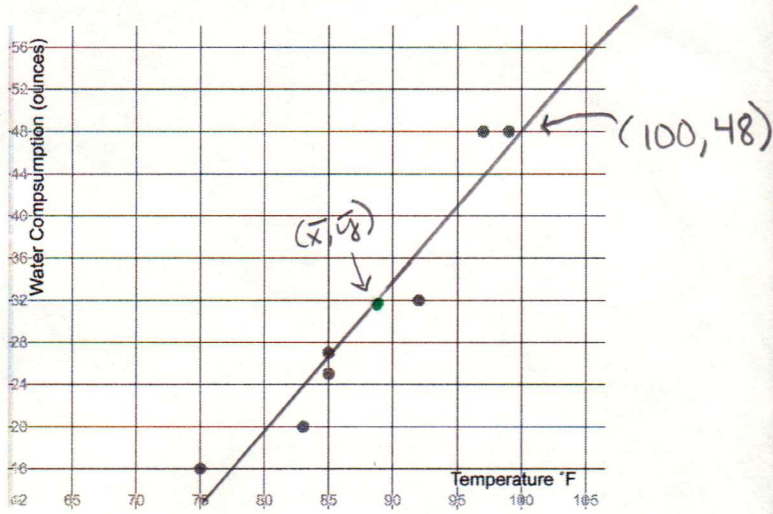
4. People were asked to record their water intake and the high temperature each day. A random sampling of the data they recorded is listed below. Using the given data and scatter plot. Find each piece of information.

Temp. °F	Water oz.
99°	48
85°	27
97°	48
75°	16
92°	32
85°	25
83°	20
$\frac{616}{7}$	$\frac{216}{7}$

Average Point:

$(\bar{x}, \bar{y})$

(88, 30.9)



Draw the line of best fit.

Equation:

$m = \frac{48 - 30.9}{100 - 88} = \frac{17.1}{12} = 1.425$

$y = 1.425(x - 88) + 30.9$

$y = 1.425x - 125.4 + 30.9$

$y = 1.425x - 94.5$

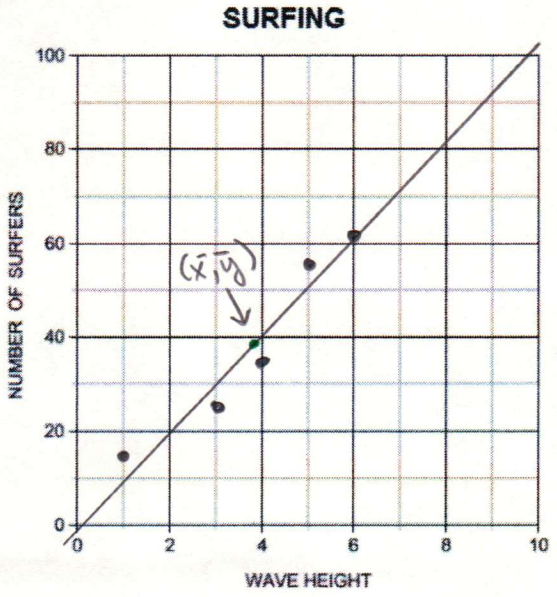
Use the following data to answer #.

Wave Height	3	6	5	1	4
Number of Surfers	24	61	56	15	35

19÷5

191÷5

5. Make a scatter plot of the data.



6. Consider the scatterplot and then describe the correlation.

Direction: positive

Strength: strong

7. Calculate the average point.

$(\bar{x}, \bar{y})$: (3.8, 38.2)

8. Draw the line of best fit and write the equation for it.

$m = \frac{60-38.2}{6-3.8} = \frac{21.8}{2.2} = 9.91$

$y = 9.91(x-3.8)+38.2$

$y = 9.91x - 37.658 + 38.2$

$\boxed{y = 9.91x + .542}$

9. Describe what the numbers in your equation mean in relation to the context of the problem.

m = 9.91 or 9.9 more surfers for every 1 foot of wave height

b = .542 when there are zero waves there is half of a surfer

10. How many surfers do you think there will be if the wave height is 15 feet?

$y = 9.91(15) + .542 = 149.19$ or about 149 surfers

11. What conclusion can you make about the relationship between wave height and the number of surfers on a given day?

The higher the waves, the more surfers there will be.

Use the following data to answer #12 – 18.

Weight (thousands of pounds)	2.0	2.4	2.5	2.8	2.9	3.1	3.2	3.5	3.6	3.9
Mileage (miles per gallon	34	34	28	23	25	23	23	22	24	18

29.9 ÷ 10
254 ÷ 10

12. Make a scatterplot of the data.

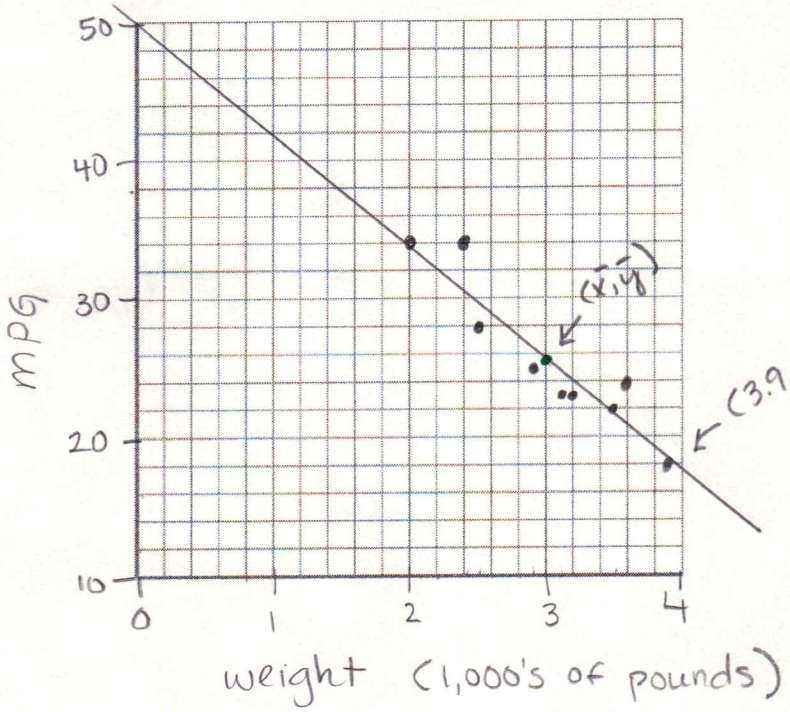
13. Consider the scatterplot and then describe the correlation.

Direction: negative

Strength:

14. Calculate the average point.

$(\bar{x}, \bar{y})$: (2.99, 25.4)



15. Draw the line of best fit (linear regression) through the average point. Then write the equation for it.

$m = \frac{18-25.4}{3.9-2.99} = \frac{-7.4}{.91} = -8.13$

$y = -8.13(x-2.99)+25.4$

$y = -8.13x + 24.3087 + 25.4$

$\boxed{y = -8.13x + 49.7087}$

16. Describe what the numbers in your equation mean in relation to the context of the problem.

$m = -8.13$ a car gets 8.13 MPG less for every 1000 pounds

$b = 49.7087$ a weightless car would get about 50 mpg

17. What would you expect the gas mileage to be for a 1700 pound car?

$x = 1.7$ $y = -8.13(1.7)+49.7087 = 35.8877$ or about 36 mpg

18. What conclusion can you make about the relationship between the weight of a car and the gas mileage it will get.

The heavier the car, the worse gas mileage it will get.