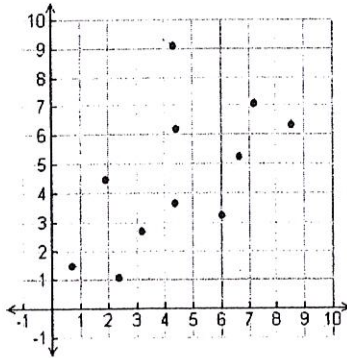


1.



- a There is a strong positive relationship between the variables.
- b There is a strong negative relationship between the variables.
- c There is a weak positive relationship between the variables.
- d There is a weak negative relationship between the variable.

2.

John bought a cellular phone for \$50 plus he pays a monthly fee to use it. The linear equation for this situation is $y = 25x + 50$. What does the 25 represent in this situation?

- a. The number of minutes he's allowed per month
- b. The amount he paid for his phone
- c. The number of calls he's allowed per month
- d. The amount of his monthly fee

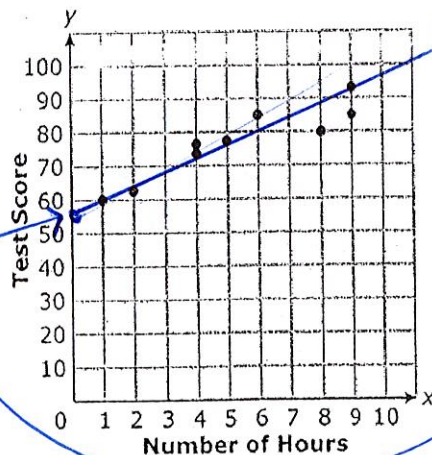
3.

One hundred people participated in an experiment. They were asked how many hours they exercised on average each day and then they were asked to give their BMI (Body Mass Index). The results were graphed, and there was a negative linear relationship between the number of hours of exercise and BMI. Which statement would be an appropriate summary of the survey?

- a. It appears there is ~~no~~ correlation between exercise and BMI. *- said negative*
- b. An increase in exercise reduces BMI — NO this sounds like it "causes" it to happen
- c. A decrease in exercise increases BMI — NO this sounds like it "causes" it to happen
- d. It appears there is a correlation between hours of exercise and BMI.

4.

The scatterplot below shows the test scores of 10 students and the number of hours they spent studying for the test.



Need to draw line of Best fit.

Based on the line of best fit, what is the initial test score?

about 55

means start (y-int)

5. You will do these problems.

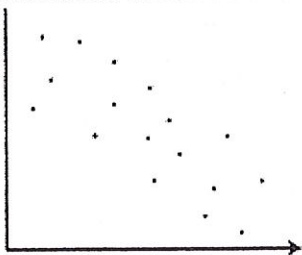
The table below shows the average height of a tree and the amount of years that it has been growing.

Time (years)	Height (in feet)
1	3
2	5
3	6
4	8
5	9

What is the average rate of change in height of the tree from Year 1 to Year 5?

- a. 1 foot per year
- b. 1.25 feet per year
- c. 1.5 feet per year
- d. 2.0 feet per year

6. Which correlation coefficient would most accurately describe the data based on a linear model?



- a. -0.75
- b. -0.05
- c. 0.55
- d. 0.75

7. What does the slope of the table represent?

Hours	2	5	8
\$ earned	32	48	64

- a. You earn \$16 for every 3 hours worked.
- b. You earn \$3 for every 16 hours worked.
- c. You earn \$5 per hour.
- d. You earn \$16 per hour.

8

There were originally 10 bushes in Mitchell's nursery. Each year the Mitchells planted the same number of bushes. In the 18th year, there were 280 bushes. Which function $b(n)$, can be used to determine the number of bushes in the nursery in any particular year?

- a. $b(n) = 15n + 10$
- b. $b(n) = 18n - 10$
- c. $b(n) = 280/18n + 10$
- d. $b(n) = 18n + 10$

9.

The table below shows the cost of a pizza based on the number of toppings.

Number of Toppings (n)	Cost (C)
1	\$12
2	\$13.50
3	\$15
4	\$16.50

Which function represents the cost of a pizza with n toppings?

- A $C(n) = 12 + 1.5(n - 1)$
- B $C(n) = 1.5n + 12$
- C $C(n) = 12 + n$
- D $C(n) = 12n$

Year Value
 (2005, 12,350) or could use (2, 10,345)
 (2007, 10,345)

10. In 2005, the value of a newly purchased car is \$12,350. Two years later the value of the car decreased to \$10,345. If the trend is linear, what is the yearly rate of change?

- A) \$1002.50
- B) 2005
- C) 0.0009
- D) 2017

same as slope of "a" value on calculator $y = ax + b$

11. What is the difference in the y-intercepts of the following two functions?

Difference is subtract

X	L_1	F(x)	L_2	X	L_1	G(x)	L_2
-1		3		2		10	
0		5		3		13	
1		7		4		16	
2		9		5		19	

$5 - 4 = 1$

$y = ax + b$
 $a = 2$
 $b = 5$

$y = 2x + 5$
 y-int

$y = ax + b$
 $a = 3$
 $b = 4$

$y = 3x + 4$
 y-int

12. A biologist is studying the relationship between a tree's diameter and its height. She records the following data for 7 different trees:

Diameter (in)	Height (ft)
2	8
3	10
4	16
5	17
6	22
7	20
8	29

What is the equation of the line of best fit?

- A) $y = 3.18x + 1.54$
- B) $y = 1.54x + 3.18$
- C) $y = -3.18x + 1.54$
- D) $y = -1.54x + 3.18$

13. A set of data produces a correlation coefficient (r-value) of -0.97 . What can we conclude about the relationship of the data?

- A) The data shows a strong positive relationship
- B) The data shows a weak positive relationship
- C) The data shows a weak negative relationship
- D) The data shows a strong negative relationship

Strong (close to 1) and negative number

14. The table below shows the price of rings for various weights of gemstones.

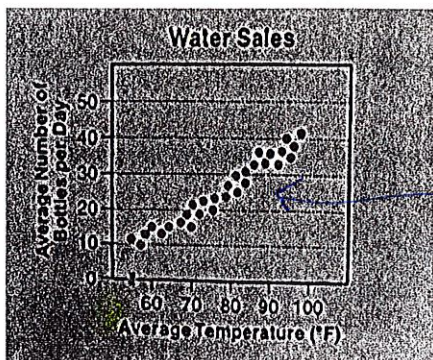
Weight (x)	.17	.25	.28	.35	.32
Price (y)	355	642	823	1086	919

Which statement best interprets the meaning of the y-intercept of the linear function that best fits these data?

- The price of the ring per unit of weight of the gemstone
- The weight of the gemstone per dollar
- The cost of the ring with no gemstone**
- The weight of the gemstone in the ring that costs \$0

start value
(before it has more and more weight from gemstones)

15. Mary sells bottles of water at a local golf course. Which would be true about the slope of the line of best fit for these data?



- The number of water bottles sold when the temperature is 0.
- The decrease in water bottles sold when the temperature increases by 1°.
- The increase in temperature when the number of water bottles increases by 1.
- The increase in water bottles sold when the temperature increase by 1°**

$\frac{y's}{x's} = \frac{\text{Avg. \# Bottles per day}}{\text{Avg. Temp. } ^\circ\text{F}}$

use words
This goes uphill
Backwards

16. The table below shows the costs for visits of different lengths by cleaning companies in a town. The length of a visit is represented by x and the cost of a visit is represented by y. Each cleaning company charges a flat fee for visiting the house or apartment and an hourly rate.

Length of a visit (in hours)	1	2	2	3	3.5	4	4.5	5.5
Cost of a Visit	72	76	91	103	105	113	135	

Based on a linear model, what is the best approximation of the correlation coefficient?

wants "r" value

$r = .992$

17.

The table below shows the pants size and age of 5 boys.

Pants Size (Toddler Sizes - T)	Age (years)	Predicted	Difference
3	3	3	0
4	3	3.8	.8
5	6	4.6	1.4
6	5	5.4	.4
7	6	6.2	.2

- line of Best fit
 $y = .8x + .6$
- Enter equation in $y_1 =$
- Use Table to get Predicted

Approximately what percent of the boys' ages is more than 1 year different from the age predicted by the line of best fit?

- 20%**
- 40%
- 60%
- 80%

$\frac{1}{5} \times 100 = 20\%$

18.

Joey compared the y-intercept of the graph of the function $f(x) = 2x + 3$ to the y-intercept of the graph of the linear function that includes the points in the table below.

x	$g(x)$
3	20
6	35
9	50
12	65

Need $g(x)$
 $g(x) = 5x + 5$ ← y-int.

What is the difference when the y-intercept of $g(x)$ is subtracted from the y-intercept of $f(x)$?

- a. -12
- b. -2
- c. 2
- d. 12

$3 - 5 = -2$
 order you subtract matters

19. A spring stretches linearly as weight is added. The table shows data collected for a certain spring.

Weight (g)	100	500	800	900	1200
Stretch (cm)	.5	2.5	4	4.5	6

What is the slope of the line that fits these data for the spring?

- a. $1/200$
- b. $1/100$
- c. $1/50$
- d. $1/2$

if you do L_1, L_2
 $y = ax + b$
 $a = 0.005$
 $b = 0$

20. The following table shows how much a caterer charges for a buffet based on the number of people that will be served.

Number Served	Charge
30	350
50	550
70	750

Which linear equation shows the relationship between the amounts a caterer charges and the number of people served?

- a. $C = 60n$
- b. $C = n + 60$
- c. $C = 50n + 10$
- d. $C = 10n + 50$

For #21 – 25, use the following data:

you will do these

Temperature	18	19	20	21	21	23	24	24	24	26	26
Chirps per minute	105	105	125	125	130	149	153	152	164	171	175

21. Find the line of best fit (round to nearest hundredth)

22. Find the correlation coefficient " r " =

23. What kind of correlation does your correlation coefficient represent?

- a. Strong positive
- b. Weak positive
- c. Strong negative
- d. Weak negative
- e. No correlation

24. What does the slope mean?

- a. The maximum temperature.
- b. The decrease in chirps per minute as the temperature changes.
- c. The increase in chirps per minute as the temperature changes.
- d. The number of chirps when the temperature is zero.
- e. The increase in temperature as the chirps per minute increases.

25. What does the y-intercept mean?

- a. The maximum temperature.
- b. The decrease in chirps per minute as the temperature changes.
- c. The increase in chirps per minute as the temperature changes.
- d. The number of chirps when the temperature is zero.