

April 22, 2019, Monday

3. Which explicit formula describes the pattern in this table?

d	C
0	1
1	6
2	36
3	216

A.  $C = 6d$   
 B.  $C = d + 6$   
 C.  $C = 6^d$   
 D.  $C = d^6$

4. If  $f(12) = 100(0.50)^{12}$ , which expression gives  $f(x)$ ?

A.  $f(x) = 0.50^x$   
 B.  $f(x) = 100^x$   
 C.  $f(x) = 100(x)^2$   
 D.  $f(x) = 100(0.50)^x$

Handwritten notes:  $C = 6^0$ ,  $C = 6^1$ ,  $C = 6^2$ ,  $C = 6^3$ ,  $C = 216$ .  $f(x) = 100(0.50)^x$

Algebra 1 - U6 Day 4 In-Class Assignment

1) What is the median of the data set?  $6$   
 What is the range?  $16 = Q3 - Q1 = 7 - (-9)$   
 What is the IQR?  $10 - 0 = 10$

2) Consider the following ordered data set: 2, 3, 5, 7, 9, 10  
 What are the minimum, lower quartile, median, upper quartile, and maximum?  
 Minimum: 2, Lower quartile: 5, Median: 7, Upper quartile: 9, Maximum: 10

3) Consider the following unorganized data set: 12, 15, 8, 29, 30, 27, 19, 12  
 What are the minimum, lower quartile, median, upper quartile, and maximum?  
 Minimum: 8, Lower quartile: 12, Median: 15, Upper quartile: 27, Maximum: 30

4) Sketch one of each: bimodal, skew right, skew left, and normal.

5) Complete the two-way table for 9th grader's school transportation survey. Based on the table, answer the following questions:

	Male	Female	Total
Walk	34	80	114
Car	28	14	42
Bus	15	12	27
Bike	52	17	69
Total	129	123	252

a) What is the probability of choosing a female who walks school?  $\frac{80}{252} = \frac{20}{63}$   
 b) What is the probability of randomly choosing a person who rides the bus?  $\frac{27}{252} = \frac{3}{28}$   
 c) Out of the students who prefer to bike to school, what percentage are female?  $\frac{17}{69} = \frac{17}{69}$   
 d) What is the marginal probability of picking a student who rides a bike?  $\frac{69}{252} = \frac{23}{84}$

6) The number of cookies found in 10 different snack bags are shown below: 14, 12, 14, 13, 14, 14, 14, 15, 14, 12  
 a) How do we measure central tendency? **mean/median**  
 b) How do we measure variability? **Range/IQR**

Find the measures of central tendency for the data above.  
 mean = 13.6  
 median = 14

Find the measure of variability for the data above.  
 range = 15 - 12 = 3  
 IQR =  $Q3 - Q1 = 14 - 13 = 1$

7) Students in Ms. Graham's Algebra II class wanted to see if there are correlations between test scores and time spent watching television. The students created a table in which they recorded 13 student's average number of hours per week spent watching television and scores on a test. Use the actual data collected by the students in Ms. Graham's class, as shown in the table below, to answer the following questions.

TV hrs/week (average)	30	12	30	20	10	20	15	12	15	11	16	20	19
Test Scores	60	80	65	85	100	78	75	95	75	90	90	80	75

a) Find the best fitting linear model that represents the data, the correlations coefficient, and the type of correlation.  
 $y = 94.2x + 53.4$   
 $r = 0.92$

b) Identify the y-intercept. What does it represent in the context of the problem?  
 $y = 94.2(0) + 53.4 = 53.4$

c) Using this model, what is the estimated test score of a student who watches TV for 35 hours?  
 $y = 94.2(35) + 53.4 = 3352.1$

d) Using this model, what is the highest number of hours a student can watch TV and still pass the test (make a 70)?  
 $70 = 94.2x + 53.4$   
 $16.6 = 94.2x$   
 $x = 0.176$

8) A rapidly growing bacterium has been discovered. The data in the following chart represents the number of bacteria in a sample each hour.

Hours	0	1	2	3	4	5
Bacteria Present	20	40	75	150	297	510

a) Write the linear model that represents the data, the correlation coefficient, and the type of correlation.  
 $y = 94.2x + 53.4$

b) Using the best fitting model, how much bacteria is present after 16 hours?  
 $y = 94.2(16) + 53.4 = 1562.6$

c) Using the best fitting model, how much bacteria is present after one day?  
 $y = 2207.4$

Questions - Random Practice - 10 Questions Create Equations 0/13 - Options -

Performance Task Practice - Performance Task 0/13 - Options -

Questions - Random Practice - 10 Questions Graph Equations 0/13 - Options -

Vocab - Random Practice - 5 Vocab Equations 0/13 - Options -

Questions - Free Response Practice - Free Response Graph Equations 0/13 - Options -

Questions - Free Response Practice - Free Response Graph Equations 0/13 - Options -

Questions - Random Practice - 10 Questions System of Equations 0/13 - Options -

Performance Task Practice - Performance Task 0/13 - Options -

Questions - Random Practice - 10 Questions Solve Systems 0/13 - Options -

Questions - Random Practice - 10 Questions Rearrange Formulas 0/13 - Options -

Questions - Free Response Practice - Free Response Rearrange Formulas 0/13 - Options -

Questions - Free Response Practice - Free Response 0/13 - Options -

you should have completed at least 3 of these tasks complete by the end of class

9) Jerry, a barista at Starbucks, recorded his sales when he's on the clock. Each week, Jerry calculated the total revenue for all of his sales. The graph is a scatter plot from the given data.

a. Determine if the correlation is positive, negative, or none.  
 b. Estimate the correlation coefficient.  
 c. Is there causation? Why or why not?

4) Theresa started making homemade cards to send to friends and family and to sell at the local craft fair. The scatter plot shows how many cards Theresa made each hour she worked. Use a trend line to estimate the number of cards Theresa can make in 14 hours.

A. 14  
 B. 10  
 C. 70  
 D. 41

5. The correlation coefficient of lines of best fit is given below. Which correlation coefficient best represents the graph in question 4?

A. 0.9957624871  
 B. 0.976084904  
 C. -0.9957624871  
 D. -0.9760964904

6. The table shows Janice's best javelin throws each year. Find an equation for the line of best fit for the data. What is the value of the correlation coefficient  $r$  for the data?

Year	1989	1990	1991	1992	1993	1994	1995	1996
Distance (m)	31.9	31.55	34.45	31.6	34	36.15	35.05	38.7

April 23, 2019, Tuesday

Item 4 Selected Response  
 Vicky is studying French. She spends 1 hour reviewing each old chapter. She also spends 1.5 hours learning each new chapter. She spends at least 10 hours per week studying French. Which graph best represents the possible number of old chapters Vicky reviews,  $x$ , and new chapters Vicky learns,  $y$ ?

Item 5 Multi-Select Technology-Enhanced  
 The set of ordered pairs shown represents a function,  $f$ .  
 $\{(5, 3), (4, 9), (3, -2), (0, 6)\}$   
 Select THREE ordered pairs that could be added to the set that would allow  $f$  to remain a function.

The correct answer is choice (B). The graph because the line is solid and the shading the line. Choices (A), (C), and (D) represent over which inequality symbol to assign.

The correct answers are choices (A), (D) Choices (B), (C), and (F) are incorrect because they have the same  $x$ -value as an ordered pair in the function. If any of these values were set would no longer represent a function there would be one  $x$ -value with two different  $y$ -values.

Math Task – Comparing Data Sets

Ms. Graham has two Algebra 1 classes. When teaching Unit 6, she lectured and practiced with each class. Each class was given homework assignments to complete for practice throughout the lesson sequence. In the middle of Unit 6, the students were given a test. Ms. Graham recorded the test and homework grades for both classes. She divided the students into two groups to determine if completing the homework assignments impacted student performance on the test. Group 1 were students who completed all their homework assignments before the test. Group 2 were students who did not complete any of their homework assignments before the test.

Group 1: 84, 57, 75, 93, 88, 84  
 Group 2: 70, 52, 70, 82, 70

1. Analyze her students' grades by calculating the mean and five statistical summaries of both groups.

	Group 1 Completed HW	Group 2 Did not complete HW
Mean	80.2	68.8
Median	84	70
Minimum	57	52
Maximum	93	80
Range	36	30
First Quartile	75	70
Third Quartile	88	70
Interquartile Range	13	0

measure of central tendency

variability

2. Compare the two groups of students. Discuss topics such as:

- Who has the higher mean and what does this tell us about the data?  
 Higher test scores  
 Group 1 students complete homework
- Who has the higher median and what does this tell us about the data?  
 Group 1
- Who has the larger interquartile range and what does this tell us about the data?  
 Group 1 their data is more spread out
- Which group is more variable?  
 Group 1
- Which group has a higher measure of central tendency?  
 Group 1

3. Create a box plot for both sets of data. Use only one number line.

4. Create a histogram for both Group 1: 84, 57, 75, 93, 88, 84 and Group 2: 70, 52, 70, 82, 70 on their own graph.

5. Compare and contrast the box plots and the histograms for each class.

- Which graph has a closer to bell shape?  
 Group 2
- Which has a skewed curve? Explain.  
 Group 1 skewed to left

April 24, 2019, Wednesday

2. The graph shows the height,  $y$ , in meters, of a rocket above sea level in terms of the time,  $t$ , in seconds, since it was launched. The rocket landed at sea level.

What does the x-intercept represent in this situation?

- the height from which the rocket was launched
- the time it took the rocket to return to sea level
- the total distance the rocket flew while it was in flight
- the time it took the rocket to reach the highest point in its flight

Algebra 1 – U6 Day 6 Unit 6 Test Review

Use the following to review for your test. Show your work for the problems on a separate sheet of paper as you need to.

What you need to know & be able to do	Things to remember	Problem	Problem
Identify the measures of central tendency.	• Mean • Median • Mode	1. 36, 39, 58, 42, 106, 39, 48 45	2. 50, 55, 60, 58, 62, 57, 68, 51, 63
Identify the measures of spread (variability/distribution).	• Q1 • Q3 • IQR • Minimum • Maximum • Range	3. (Use the same #s from 1)	4. (Use the same #s from 2)
Construct a box-and-whisker plot.	• First dot: Min • First Line: Q1 • Middle Line: Median • Third Line: Q3 • Last dot: Max	5. Using the data from #1 & 2, construct a box and whisker plot.	
Determine if the situation has positive, negative, or no correlation and if there is causation.	• Positive: Both items are increasing/decreasing • Negative: one item increases as the other decreases • No Correlation: No relationship • Causation: One item causes the other.	6. What percent of data lies between the following: a. min & Q1 b. Q1 & Q3 c. median & Q3 d. min & max	7. Practicing Free Throws vs. Free Throw Percentage. 8. Colors of the Sky vs. Time of Day 9. Weight vs. Amount of Exercise 10. Number of Followers on Twitter vs. Number of Friends on Facebook

Find the line of best fit.

$y = ax + b$   
 $r$  = correlation coefficient (if close to 0 bad fit; if close to 1 or -1 good fit.)

Construct a two-way frequency table.

Joint Probability: Individual Cell/ Table Total  
 Marginal Probability: Row or Column Total/ Table Total  
 Conditional Probability: Individual Cell/ Row or Column Total

Correlation Coefficient

$r$  = correlation coefficient (if close to 0 bad fit; if close to 1 or -1 good fit.)

Shape of distribution

- Normal (bell curve)
- Bimodal (2 peaks)
- Skewed left (tail on left)
- Skewed right (tail on right)

11. Determine the line of best fit, correlation coefficient, and type of correlation. Is this a good line of fit for the data?

Price	4.00	5.50	3.50	8.00	5.50	7.00
# of Sandwiches	68	55	85	22	64	28

Complete the table to answer the following questions.

	Math	Social Studies	PE	Total
9 <sup>th</sup> Graders	50	40	50	
10 <sup>th</sup> Graders		20	40	
Total	72	38	200	

12. How many 9<sup>th</sup> graders like Social Studies?  
 13. What percentage of 10<sup>th</sup> graders like PE?  
 14. Given that a student likes math, what is the probability they are in the freshman class?  
 16. According to the given correlation coefficient, describe the linear association of two variables as positive, negative, strong, weak, or no correlation (use at least two words).  
 $a. r = -0.992$   
 $b. r = 0.289$   
 $c. r = 0.865$   
 17. Draw an example of each distribution shape.

April 25, 2019, Thursday

Item 7

Constructed-Response

It takes Matt  $m$  months to save \$1,000.

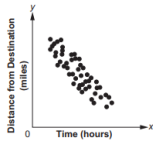
Part A Write an equation that models the average number of dollars,  $x$ , Matt saves each month. Write your answer in the space provided.

Part B Matt takes 20 months to save \$1,000. Explain how you could use your equation from Part A to find the average number of dollars Matt saves each month. Write your answer in the space provided.

Points	The res
2	• The res • The res • The res • The res
1	• The res • The res • The res • The res • The res
0	• The res • The res • The res • The res • The res

April 26, 2019, Friday

2. Which BEST describes the correlation of the two variables shown in the scatter plot?



- A. weak positive
- B. strong positive
- C. weak negative
- D. strong negative

4. To rent a carpet cleaner at the hardware store, there is a set fee and an hourly rate. The rental cost,  $c$ , can be determined using this equation when the carpet cleaner is rented for  $h$  hours.

$$c = 25 + 3h$$

Which of these is the hourly rate?

- A. 3
- B.  $3h$
- C. 25
- D.  $25h$

Answers to Unit 6.3 Sample Items  
 1. C 2. D 3. D 4. A