Alg 2 Acc [A]
Test #1, MP #1
Chapter 1
9/25/20

Victoria Kuznetsov **'s favorite deli sandwich is the** never had one

On my honor as a student, I have neither given nor received aid on this assessment.

Signature: V Ruz

You must show all work to receive full credit on non-multiple choice / True False questions.
Please be as neat and detailed as possible so that I may follow your train of thought.
You will be graded on both the correctness of your methods as well as on the accuracy of your final answer. Use correct mathematical notation throughout the test.
If a question says to write an equation of a line, then **any** form of that equation is acceptable as long as it is in correct mathematical notation.
Solve each problem using methods from class. Use interval notation whenever possible.

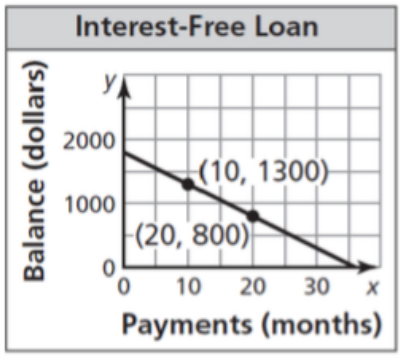
1. Write a function g whose graph represents the indicated transformation of the graph of f. Show interim step(s) as demonstrated in class. Write your final answer on the line.

$f(x) = |3x + 4| - 5$; Translation 2 units to the right, followed by a horizontal compression by a factor of $\frac{1}{3}$, followed by a vertical stretch by a factor of 2.

$f(x) = |3x+4| - 5$
$h(x) = |3x+21| - 5$
$j(x) = |3 \cdot 3x + 21| - 5$
$j(x) = |9x+21| - 5$
$g(x) = 2|9x+21| - 5$

1. $g(x) = 2|9x+21| - 5$

2. Write an equation of the line **and** interpret the slope.



Equation: $y = -50x + 1800$

$\frac{y_2 - y_1}{x_2 - x_1} = \frac{1300 - 800}{10 - 20} = \frac{500}{-10} = -50$

$y = -50x + b$
$800 = -50(20) + b$
$800 = -1000 + b$
$+1000 \quad +1000$
$1800 = b$

Interpretation: The slope is negative

so this is a negative linear equation

3. Write an equation of the line that passes through the point $\left(-\frac{21}{5},\frac{17}{4}\right)$ and is parallel to the line $y=\frac{8}{15}x+\frac{17}{9}$.

$y=\frac{8}{15}x+b$

$\frac{17}{4}=\frac{8}{15}\left(-\frac{21}{5}\right)+b$

$\frac{17}{4}=\frac{-168}{75}+b$

$+\frac{168}{75}\quad+\frac{168}{75}$

$\frac{1275}{300}-\frac{672}{300}=b$

$\frac{603}{300}=b$

$b=\frac{201}{100}$

$15\times 5=75$

$\frac{17}{4}=\frac{1275}{300}$

3. $y=\frac{8}{15}x+\frac{201}{100}$

4. ***Multiple Choice:*** Arrange the correlation coefficients in order from the weakest correlation to the strongest.

.82, .39, −.25, −.89

A) −.89, −.25, .39, .82
B) −.89, .82, .39, −.25
C) .82, .39, −.25, −.89
D) −.25, .39, .82, −.89

4. D

TRUE or FALSE

5. A correlation coefficient near 1 indicates that the points lie close to a line with a positive slope.

Circle one: **TRUE** **FALSE**

6. The correlation coefficient is the slope of the line of best fit.

Circle one: **TRUE** **FALSE**

7. Anthropologists can use the femur, or thighbone, to estimate the height of a human being. The table shows the results of a randomly selected sample.

Femur length (cm)	40	45	32	50	37	41	30	34
Height (cm)	168	180	149	195	161	172	141	150

a) Using femur length as the independent variable, find the line of best fit for the data. *Write your equation rounded to 3 decimal places.*

$y = 2.646x + 62.285$

b) Find the correlation coefficient for the data. *Round to 3 decimal places.*

$r = .997$

c) Use the line of best fit to predict the height of a person whose femur is 47 cm. *Round your answer to 3 decimal places.*

$y = 2.646(47) + 62.285$

$y = 186.66$

d) The above question is an example of: *circle one:* **interpolation** **extrapolation**

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8. A Major League Baseball stadium sells three types of tickets. Reserved tickets are sold for $20 each, field-level tickets are sold for $50 each, and box seat tickets are sold for $100 each. You purchase 10 total tickets for $370. You have twice as many reserved tickets as field-level tickets.

Using the variables defined below, set up a system of equations that could be solved to determine how many of each tickets you purchased. *Do **NOT** solve the system! Just set up the equations!*

Let R = the number of reserved tickets bought
Let F = the number of field-level tickets bought
Let B = the number of box seat tickets bought

① $20r + 50f + 100b = 370$

② $r + f + b = 10$

③ $r = 2f$

9. Solve the system of equations using **substitution.** Be sure to follow the format that we covered in class. If your answer doesn't match your work or if your work isn't in the required format, then you will not receive full credit, even if your final answer is correct.

① $2x + y - 3z = 10$

② $2x - 3y + 3z = -5$

③ $y = 2x$

9. NO SOLUTION

I. SUBSTITUTE ③ → ①

① $2x + y - 3z = 10$

$2x + 2x - 3z = 10$

④ $4x - 3z = 10$

II. SUBSTITUTE ③ → ②

② $2x - 3y + 3z = -5$

$2x - 3(2x) + 3z = -5$

$2x - 6x + 3z = -5$

$(-1) -4x + 3z = 5(-1)$

⑤ $4x - 3z = -5$

NO SOLUTION

10. Solve the system of equations using **elimination**. Be sure to follow the format that we covered in class. If your answer doesn't match your work or if your work isn't in the required format, then you will not receive full credit, even if your final answer is correct.

① $x+y+z=2$
② $2x+3y+z=2$
③ $x-4y+3z=3$

10._____

I. Eliminate x in ① + ③

① $x+y+z=2$
-1 ③ $-x+4y-3z=-3$
④ $5y-2z=0$

II. Eliminate x in ② + ③

② $2x+3y+z=2$
-2 ③ $-2x+8y-6z=-6$
⑤ $11y-5z=-4$

III. Solve ④ + ⑤

④ $5y-2z=0$
$+2z \quad +2z$
$\frac{5y}{5}=\frac{2z}{5}$
$y=\frac{2}{5}z$

⑤ $11\left(\frac{2}{5}z\right)-5z=-4$
$\frac{22}{5}z-5z=-4$
$\left(-\frac{5}{3}\right)-\frac{3}{5}z=-4\left(-\frac{5}{3}\right)$
$z=$

11. Solve the system of equations using **elimination**. Be sure to follow the format that we covered in class. If your answer doesn't match your work or if your work isn't in the required format, then you will not receive full credit, even if your final answer is correct.

$$x + 2y + 4z = 1$$
$$x + 3y + 9z = 2$$
$$x + y - z = 0$$

11._____