Name: _____Date : _____

IM 3 Mid Unit Quiz V2 – Review of Linear Relations
Teacher: Ms. Aschenbrenner, Mr. Santowski

Score:_____/36

CALCULATOR ACTIVE - SHOW RELEVANT WORK AND WRITE ALL ANSWERS IN THE SPACES PROVIDED.

A graphing display calculator MAY be used in this quiz. Maximum marks will be given for correct answers. Where an answer is wrong, some marks may be given for correct method, provided this is shown by written working. Solutions found from a graphic display calculator should be supported by suitable working, e.g. if graphs are used to find a solution, you should sketch these as part of your answer.

1. The following 2 questions, perform the required algebra with the given linear equations:

(7 marks)

a. Given the equation $y - 4 = -\dfrac{3}{7}(x - 14)$. Write your equation in slope-intercept form as well as standard form.

b. Given the equation $2x - 3y = 11$, determine any non-intercept point on this linear function.

(4)

(3)

2. Hassan is being asked to analyze two functions. One function ($y = g(x)$) is presented as a graph, which is presented below. The other function is linear function, which is originally defined by the equation 3x + 8y = 64.

(13 marks)

a. Omar has changed the linear equation from $3x + 8y = 64$ into function form as $f(x) = 8 - \dfrac{3}{8}x$. Is he correct? Show the analysis that leads to your conclusion.
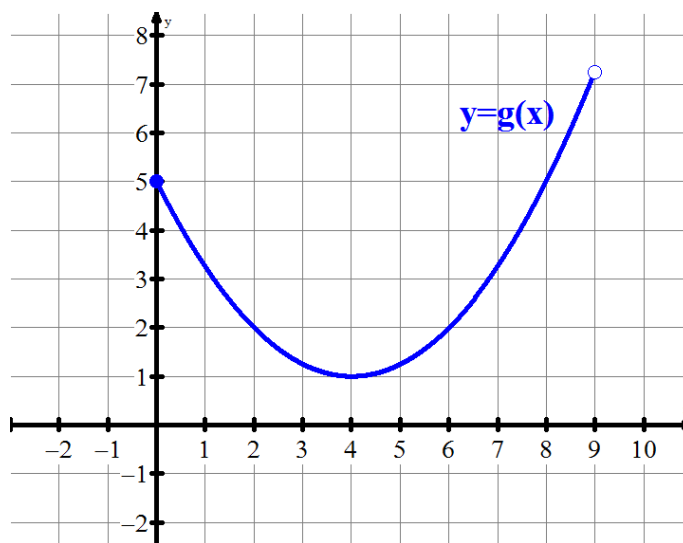
b. Evaluate g(4) and evaluate f(4).

(3)

(2)

c. This linear function y = f(x) will now be limited to the domain of $\{x \in R \,|\, 0 \le x < 9\}$. Graph $y = f(x)$ on the graph provided. (You will have two functions now graphed on the one grid.)

(3)

d. Determine the range of $y = f(x)$.

e. Solve g(x) = 2.

(2)

(2)

f. Solve f(x) > g(x). Show/explain the analysis that leads to your results.

(1)

3. Enrica and Semin were asked to analyze some population data. They were given the following student enrollment data for the University of Northern Colorado: In 2007, the student population was 13,700 and in 2013, the student population was 22,100.

(16 marks)

a. Since the girls know two data points in this relation, they can calculate a slope. What is the slope of this relation?

(2)

b. What does this slope mean, given the context of the data?

(2)

c. In the study of this relation, Taya needs to define two variables. She selects x and P as her variables. Explain what each variable could represent in this problem.

(2)

d. Estimate the student enrollment for 2015. Show your analysis.

(3)

3.   CONTINUED. Enrica and Semin were asked to analyze some population data. They were given the following student enrollment data for the University of Northern Colorado: In 2007, the student population was 13,700 and in 2013, the student population was 22,100.

e.   Ms. A. was a student at UNC in 2003. What was the student population at that time?

f.   Solve $P(x) = 32,600$ and interpret your answer.

(3)

(3)

g.   If the student population was 32,600 in 2015, this linear model is NOT an accurate model. Give ONE reason why this model might be inaccurate and ONE suggestion for improving the accuracy of the student population model.

(1)