Name _____ Date _____ Hour _____

THINKING WITH MATHEMATICAL MODELS

INV 2 Quiz Prep

Linear Review / Inequalities / Symbolic Method / Point of Intersection

1.) The Halloween School dance is coming up soon and student council must book a DJ. The following quotes were received from three different companies. *Jammin' Sounds* charges $500 for their services and $25 for each hour they play music. *Feel the Beat* charges $300 up front and $50 per hour. *Master MC* charges $100 up front plus $100 per hour.

a) Write an equation to reflect the costs of each DJ Company.

Jammin' Sounds: $y_1 =$

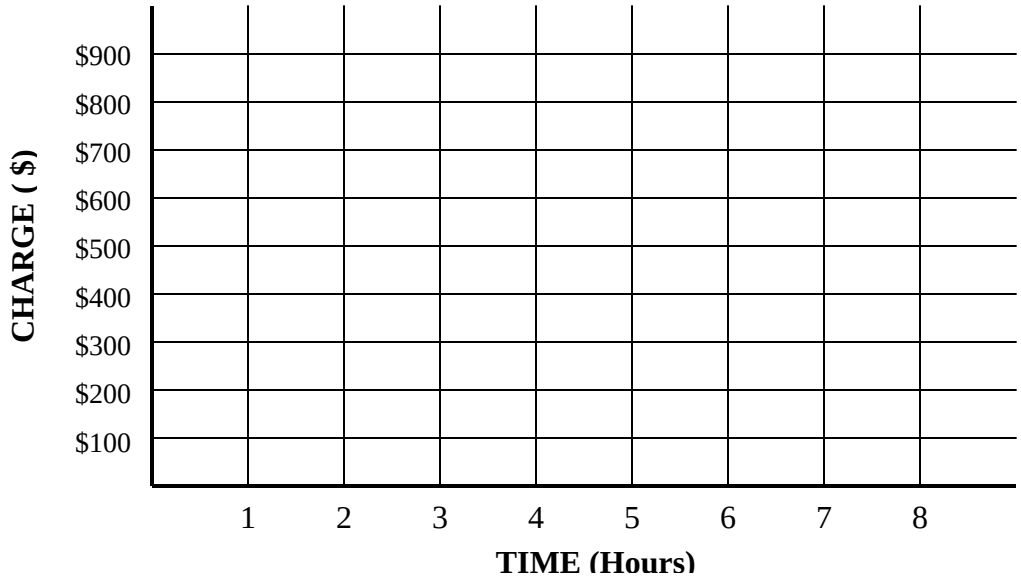
Feel the Beat: $y_2 =$

Master MC: $y_3 =$

b) Complete the table for each DJ Company for 0 to 8 hours.

Hours	Jammin' Sounds	Feel the Beat	Master MC

c) Create a graph reflecting the charges of each company.



2.) Use the information from the other side to answer the following questions.

a.) At how many hours will **Jammin' Sounds** and **Feel the Beat** cost the same? **Explain** at least **two** ways to confirm your answer.

b.) At how many hours will **Feel the Beat** and **Master MC** cost the same? **Explain** at least **two** ways to confirm your answer.

c.) If VMS plans to book the DJ for **3 hours**, which company would be the best deal? **Explain** how you know.

3.) When considering **y = mx + b**, what do the values for "**m**" and "**b**" tell us about the equation, the table, and the graph. Use the choices from the box to fill in the grid.

	m	**b**
Equation		
Table		
Graph		

Constant Term	Value of "y" when "x" is zero	Slope
Y-Intercept	Point of Origin	Coefficient
Point of Intersection	Rate of Change	Inequality

Name _____ Date _____ Hour _____

INV 2 Quiz Prep - continued

For each of the following inequalities, **circle** the values for "x" that would make the inequality true. **Draw a line** through the values for "x" that would cause the inequality to be untrue.

4.) **x > 12**	a) 15.25	b) 12	c) -7
5.) **2.5x ≤ 20**	a) 10	b) –3	c) 6
6.) **x + 5 ≥ 17**	a) 32	b) –17	c) 12
7.) **-7 > x + 4**	a) 7.5	b) –19	c) –10
8.) **6x –8 < 100**	a) 9	b) 15	c) 50

Using Symbolic Method, solve for "x". ***Show all Steps!***

9.) $6x + 18 = 2x + 46$

10.) $7x + 25 = -8x + 115$

11.) $-5x - 8 = 24 - 9x$

12.) $23 + 12x = -9x - 40$

13.) Using the information given, determine the slope and y-intercept for each problem and write an equation that meets the criteria.

a) Slope = 9; y-intercept is -15

b) Slope = -4; Passes through (0, 27)

c) Passes through (6, 50) and (0, 2)

d) Passes through (13, 40) and (5, 8)

e) Parallel to y = -5x + 7, but passes through (0, 12)

f) Passes through (5, 18) and (11, -24)

14.) Write an equation for the following graphs.