Mathematics 2204/2205 Review **Name: _____**

1. Mr. Jackson has a choice of three car rental companies. The following options are available:

Car Rental Company	Base Daily Charge	Per-KM Charge
Budget Rent–a-Car	$30	$1
Thrifty Car Rentals	$20	$2
Rent-a-Wreck	None	$3

a) Write an equation to represent each option.
b) Graph the equations in (a). Choose an appropriate scale and label each axis. Label each line that represents each company.
c) Determine the points of intersection of each of the lines in (b).

Budget Rent–a-Car and Thrifty Car Rentals: _____

Thrifty Car Rentals and Rent-a-Wreck: _____

Rent-a-Wreck and Budget Rent–a-Car: _____

d) Complete the following:
   I. For what times is Budget Rent–a-Car the best choice? _____
   II. For what times is Thrifty Car Rentals the best choice? _____
   III. For what times is Rent-a-Wreck the best choice? _____

e) What is the domain and range for Thrifty Car Rentals?

2. Solve the following system of equations by the substitution method:

a) $\begin{cases} x+3y=-7 \\ 2x-3y=13 \end{cases}$ b) $\begin{cases} 9x-3y=11 \\ x-2y=2 \end{cases}$

3. Solve the following system of equations by the elimination method.

a) $\begin{cases} 4x-16y=3 \\ x-2y=0 \end{cases}$ b) $\begin{cases} 20p+6q=3 \\ 5p-2q=6 \end{cases}$

4. Billy rented 3 movies and 4 video games for $22.50. Steve rented 5 movies and 2 video games for $27. Determine the price for a rental of a movie and a rental of video game.

b) Jaxon says he rents at the same store and rented 8 movies and 1 video game for $37.50. Do you believe him? Explain.

5. Find the determinant of the matrix $\begin{bmatrix} 2 & 4 \\ -2 & 2 \end{bmatrix}$.

6. Find the inverse of $\begin{bmatrix} 2 & 2 \\ 3 & 4 \end{bmatrix}$ without a calculator

7. The following phone plan offers their clients three different rates for calls within Canada, the U.S. and to Europe.

	Minutes within Canada	**Minutes to U.S.**	**Minutes to Europe**	**Charge ($)**
Bell	115	145	15	46.95
Newtel	75	100	20	36.40
AT& T	150	200	30	68.10

a) Write the equations that describe the situation.
b) Write the equations in matrix from.
c) Using the graphing calculator determine the per minute charges for all three destinations.

12. You are playing basketball and attempt a three-point buzzer beater. The ball leaves your hand at a height of 1.8m and just misses the defenders fingers (6.4m from the basket) and reaches 3.1m off the floor. If the basketball net is 8m from you and 2.8m high and you make the basket determine the quadratic equation of the balls motion.

13. Solve the following system of equations:

$$-x + 3y + z = -10$$
$$3x + 2y - 2z = 3$$
$$2x - y - 4z = -7$$