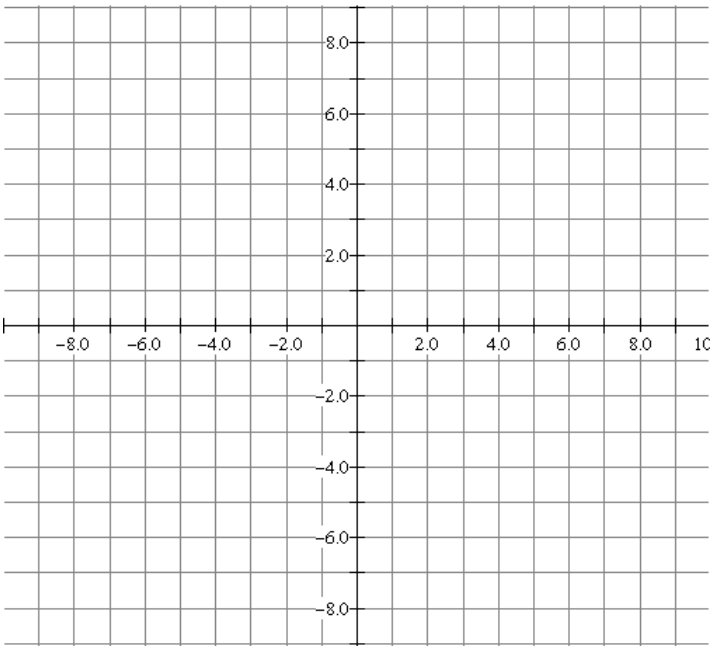
Exam 5a Intermediate Algebra 2 804-203 Spring 2009

Name _____ **Each problem is worth 12.5 points.** **/100**

1. Plot each line to find the solution of the system of equations:

$$\begin{aligned} x + 2y &= 7 \\ 2x - y &= -1 \end{aligned}$$

Then check your answer by solving the system algebraically.



2. A man travels 785 miles by both train and bus. The bus averages 55 mph, while the train averages 45 mph. The total travel time on both train and bus was 15 hours. How long did the train trip last?

Evaluate the following determinants.

3. $\begin{vmatrix} -2 & 4 \\ 5 & 3 \end{vmatrix}$ = _____

4. $\begin{vmatrix} 1 & -1 & -2 \\ 1 & -2 & -1 \\ 2 & 1 & -1 \end{vmatrix}$ = _____

Solve the following systems of equations by Cramer's Rule.

5. $\begin{aligned} 2x + 3y &= 1 \\ 6x - y &= 13 \end{aligned}$

6.
$$\begin{array}{rcrcrcr} x & + & y & + & z & = & 2 \\ 2x & - & y & - & z & = & 1 \\ x & & & + & 3z & = & -2 \end{array}$$

Solve and classify (consistent and independent, inconsistent, or dependent) the following systems of equations . If the solutions are dependent, give the linear "form" of the infinite number of solutions.

7.
$$\begin{array}{rcrcrcr} x & + & y & + & 2z & = & 5 \\ 2x & - & 2y & + & z & = & 8 \\ 3x & + & 2y & - & 2z & = & 0 \end{array}$$

8.
$$\begin{array}{rcrcrcr} x & - & y & - & z & = & -4 \\ x & - & 3y & + & z & = & -10 \\ 3x & + & 2y & - & 8z & = & 3 \end{array}$$