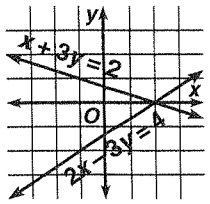
NAME _____ DATE _____

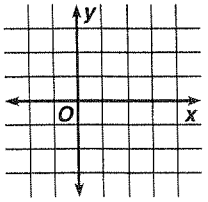
Chapter 2 Test, Form 2B

1. Identify the system shown by the graph as consistent and independent, consistent and dependent, or inconsistent.



1. _____

2. Graph the system to find the solution set.
$y = 3 - x$
$y - x = -1$



2. _____

3. Solve algebraically. $4x - y = -3$
$5x + 2y = 1$

3. _____

Use matrices A, B, and C to find the sum or product.

$$A = \begin{bmatrix} -3 & -2 \\ 0 & 5 \\ 6 & -1 \end{bmatrix} \quad B = \begin{bmatrix} 8 & 6 \\ -5 & 4 \\ 3 & -1 \end{bmatrix} \quad C = \begin{bmatrix} -3 & 2 & 1 \\ 0 & 5 & -6 \end{bmatrix}$$

4. _____

4. $A + B$

5. AC

5. _____

6. Find the value of x and y for which $[5 \quad -3x] = [-4x \quad 5y]$ is true.

6. _____

7. Find the value of $\begin{vmatrix} 4 & -3 & 1 \\ 7 & 2 & -5 \\ -1 & 1 & 3 \end{vmatrix}$.

7. _____

8. Given $A = \begin{bmatrix} -3 & 7 \\ 5 & 1 \end{bmatrix}$, find A^{-1}, if it exists.

8. _____

9. Solve by using matrix equations. $3x + 2y = 1$
$2x - 3y = 18$

9. _____

Solve each system of equations by using augmented matrices.

10. $3x + 2y = 7$
$6x + 4y = 14$

11. $2x - y + z = -3$
$y + z - 1 = 0$
$x + y - z = 9$

10. _____

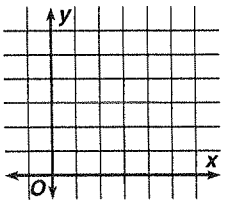
11. _____

NAME _____ DATE _____

Chapter 2 Test, Form 2A (continued)

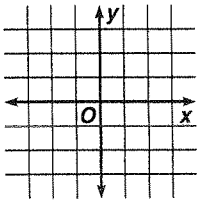
Solve each system of inequalities by graphing and name the vertices of each polygonal convex set. Then, find the maximum and minimum values for each function.

12. $x \geq 0$
$y \geq 0$
$x + y \leq 6$
$f(x, y) = 5x + 3y$



12. _____

13. $x \leq 0$
$y \leq 0$
$2x + y \leq 3$
$f(x, y) = 2x + 2y$



13. _____

Solve each problem, if possible. If not possible, state whether the problem is infeasible, has alternate optimal solutions, or is unbounded.

14. The members of the junior class at White Mountain High School are selling ice cream cones in the school cafeteria to raise money for their prom. A local ice cream shop has donated the ice cream. The students have enough Heath Bar Crunch ice cream for 50 cones and enough frozen yogurt for 80 cones. They have 100 cones available. If they plan to sell each Heath Bar Crunch cone for \$2.00 and each frozen yogurt cone for \$1, and they sell all 100 cones, what is the maximum amount they can expect to make?

14. _____

15. Ginny Dettore custom sews bridal gowns and bridesmaid dresses on a part-time basis. Each dress sells for \$200 and each gown sells for \$650. It takes her 2 weeks to produce a bridesmaid dress and 5 weeks to produce a bridal gown. She accepts orders for at least 3 times as many bridesmaid dresses as she does bridal gowns. In the next 22 weeks, what is the maximum amount of money she can expect to earn?

15. _____

Bonus

Use matrix equations to find the value of x for the system $\begin{matrix} ax + by = c. \\ dx + ey = f \end{matrix}$

Bonus: _____