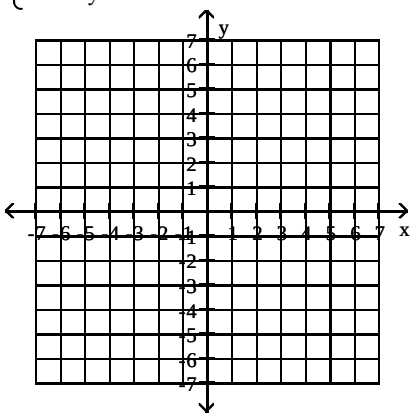
EAST LOS ANGELES COLLEGE **NAME:**

MATH 125 (INTERMEDIATE ALGEBRA) WORKSHEET SECTION 9.1

Solve the system graphically.

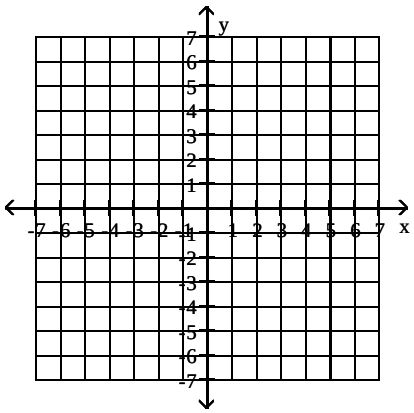
1)

$$\begin{cases} 3x + y = 20 \\ x + 2y = 10 \end{cases}$$



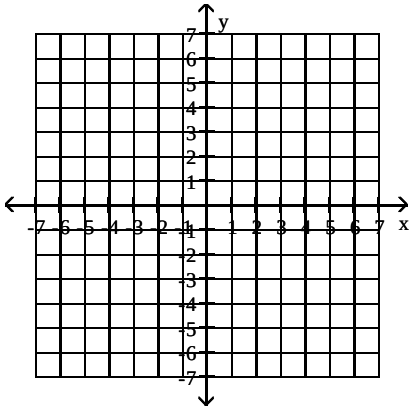
2)

$$\begin{cases} 2x + y = 9 \\ 8x + 4y = 36 \end{cases}$$



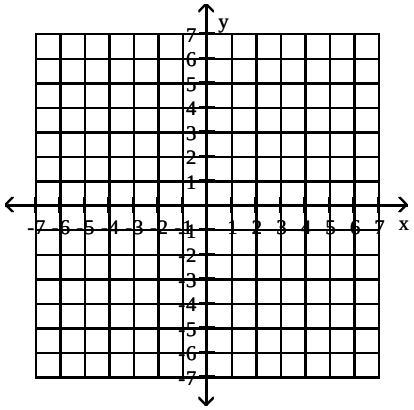
3)

$$\begin{cases} 9x - 2y = 30 \\ 5x + \frac{4}{3}y = 24 \end{cases}$$



4)

$$\begin{cases} 3x + 2y = 5 \\ -6x - 4y = 5 \end{cases}$$



EAST LOS ANGELES COLLEGE **NAME:**

MATH 125 (INTERMEDIATE ALGEBRA) WORKSHEET SECTION 9.2

Solve the system of equations using substitution. Note that the system may be inconsistent or consistent with dependent equations.

1) $\begin{cases} y = 13 - 3x \\ 9y + 2x = -8 \end{cases}$

2) $\begin{cases} x + 4y = -34 \\ -6x + 3y = 15 \end{cases}$

3) $\begin{cases} x + y = 4 \\ 2x + 2y = 8 \end{cases}$

4) $\begin{cases} x + y = 4 \\ x + y = -7 \end{cases}$

Translate the problem to a system of equations, then

5) The difference between two numbers is 64. Five times the smaller number equals the larger number. Find the numbers.

6) The perimeter of a triangle is 37 cm. The triangle is isosceles now, but if its base was lengthened by 4 cm and each leg was shortened by 4 cm, it would be equilateral. Find the base of the original triangle.

EAST LOS ANGELES COLLEGE **NAME:**

MATH 125 (INTERMEDIATE ALGEBRA) WORKSHEET SECTION 9.3

Solve the system of equations using the elimination method.

1) $\begin{cases} x + 7y = 51 \\ 7x + 6y = 99 \end{cases}$

2) $\begin{cases} -0.6x - 0.7y = -1.9 \\ 0.9x - 0.1y = 1.7 \end{cases}$

3) $\begin{cases} 6x + 3y = 4 \\ -36x - 18y = -24 \end{cases}$

4) $\begin{cases} \frac{1}{3}x - \frac{1}{4}y = 1 \\ \frac{2}{3}x + \frac{1}{2}y = 2 \end{cases}$

Translate the problem to a system of equations, then solve using the elimination method.

5) Two angles are complementary. One angle is 54° more than twice the other. Find the measure of each angle.

6) The perimeter of a rectangle is 52 cm. One side is 12 cm longer than the other side. Find the lengths of the sides.

EAST LOS ANGELES COLLEGE **NAME:**

MATH 125 (INTERMEDIATE ALGEBRA) WORKSHEET SECTION 9.4

Solve the system of equations.

1)

$$\begin{cases} x + y + z = 0 \\ x - y + 4z = 7 \\ 2x + y + z = -4 \end{cases}$$

2)

$$\begin{cases} 2x + 3y + z = 9 \\ 4x - 4y - z = 0 \\ 2x + y + 2z = -1 \end{cases}$$

3)

$$\begin{cases} 3x - y = 0 \\ 2y + z = 16 \\ x + 4z = 18 \end{cases}$$

EAST LOS ANGELES COLLEGE **NAME:**

MATH 125 (INTERMEDIATE ALGEBRA) WORKSHEET SECTION 9.5

Write the augmented matrix for the system of equations. Do NOT solve.

1) $\begin{cases} 8x + 2y = 62 \\ x + 2y = 6 \end{cases}$

Given the matrix in echelon form, find the solution for the system.

2) $\left[\begin{array}{ccc|c} 1 & 1 & -4 & 2 \\ 0 & 1 & -1 & 2 \\ 0 & 0 & 1 & -2 \end{array}\right]$

Complete the indicated row operation.

3) Replace R_2 in $\left[\begin{array}{cc|c} -7 & -5 & -1 \\ -3 & -10 & 0 \end{array}\right]$ with $4R_2$.

4) Replace R_2 in $\left[\begin{array}{cc|c} -8 & 6 & 1 \\ 7 & 0 & 5 \end{array}\right]$ with $-4R_1 + R_2$.

5) Replace R_3 in $\left[\begin{array}{ccc|c} 6 & 10 & -7 & 1 \\ 6 & 6 & -1 & 0 \\ 10 & 9 & 3 & -1 \end{array}\right]$ with $3R_2 + R_3$.

Describe the row operation that should be performed to get the matrix closer to echelon form.

6) $\left[\begin{array}{ccc|c} 1 & 13 & 9 & 15 \\ 0 & -5 & 1 & -3 \\ 0 & -10 & 6 & -7 \end{array}\right]$

Solve by transforming the augmented matrix into echelon form.

7) $\begin{cases} 2x + 4y = 12 \\ 2x + 5y = 16 \end{cases}$

8)

$$\begin{cases} 2x + 6y - z = 55 \\ x + 5y + 9z = 89 \\ -6x + y + z = -42 \end{cases}$$

9)

$$\begin{cases} x - y + 3z = 10 \\ 2x + z = 3 \\ x + 2y + z = 1 \end{cases}$$

EAST LOS ANGELES COLLEGE **NAME:**

MATH 125 (INTERMEDIATE ALGEBRA) WORKSHEET SECTION 9.6

Find the determinant.

1)

$$\begin{bmatrix} 3 & -1 \\ 1 & 2 \end{bmatrix}$$

2)

$$\begin{bmatrix} -1 & 2 & -4 \\ -3 & -1 & 1 \\ -3 & 2 & 2 \end{bmatrix}$$

Find x.

3)

$$\begin{vmatrix} -2 & 5 \\ 1 & x \end{vmatrix} = -9$$

Solve using Cramer's Rule.

4)

$$\begin{cases} x - y + 4z = 7 \\ 5x + z = 3 \\ x + 2y + z = 13 \end{cases}$$

5)

$$\begin{cases} 7x - 8y - z = -66 \\ x - 3y - 4z = -30 \\ 6x + y + z = 16 \end{cases}$$

If a triangle has vertices of (x_1, y_1), (x_2, y_2), and (x_3, y_3) then the area of the triangle is given by $A = \frac{1}{2}$

$$\left| \det \begin{bmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{bmatrix} \right| .$$

Find the area of the triangle with vertices at the given points.

6) (–3, 3) (1, –4) (5, –3)

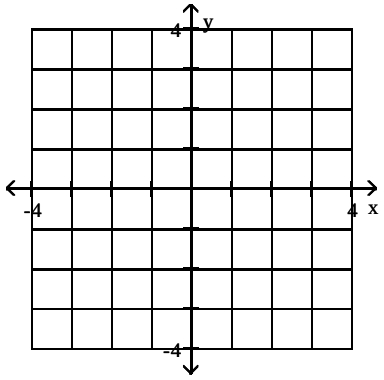
EAST LOS ANGELES COLLEGE **NAME:**

MATH 125 (INTERMEDIATE ALGEBRA) WORKSHEET SECTION 9.7

Graph the solution of the system.

1)

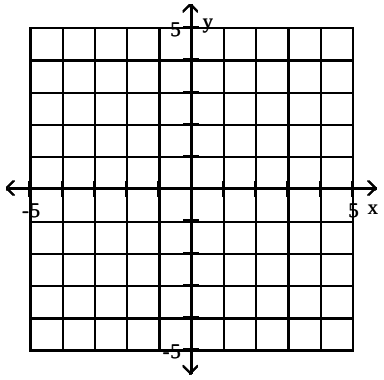
$$\begin{cases} 2x + y \le 4 \\ x - 1 \ge 0 \end{cases}$$



Graph the solution of the system.

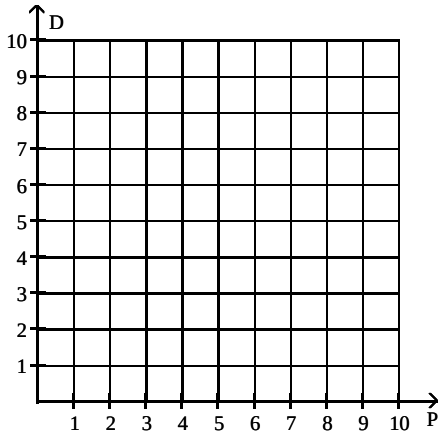
3)

$$\begin{cases} x + 2y \ge 2 \\ x - y \le 0 \end{cases}$$



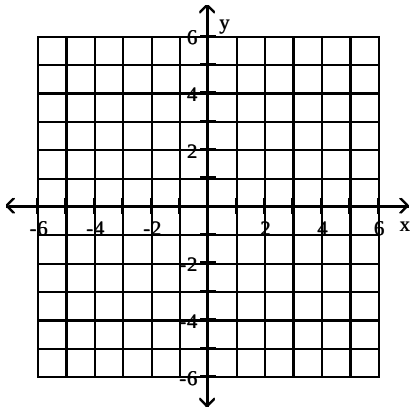
Solve the problem.

2) Bruce is a retired carpenter who builds patio chairs and dog houses which he sells at his local flea market. It takes him 4 hours to build a dog house and 5 hours to build a patio chair. Bruce can work no more than 40 hours per week and he must produce more dog houses than chairs. Write a system of inequalities to describe this situation and solve the system by graphing. Use D for the number of dog houses and P for the number of patio chairs produced in a week.



4)

$$\begin{cases} 2x + 3y \ge 6 \\ x - y \ge 3 \\ y \le 2 \end{cases}$$



Answer Key WORKSHEET 9.1
Testname: W_9_1

1) (6, 2)
2) Consistent with dependent equations
3) (4, 3)
4) Inconsistent with independent equations

Answer Key WORKSHEET 9.2
Testname: W_9_2

1) (5, −2)
2) (−6, −7)
3) All ordered pairs along $x + y = 4$
4) No solution
5) 16, 80
6) 7 cm

Answer Key WORKSHEET 9.3
Testname: W_9_3

1) (9, 6)
2) (2, 1)
3) All ordered pairs along $6x + 3y = 4$
4) $\left(3, 0\right)$
5) 12°, 78°
6) 7 cm, 19 cmWORKSHEET 9.1

Answer Key WORKSHEET 9.4
Testname: W_9_4

1) (−4, 1, 3)
2) (2, 3, −4)
3) (2, 6, 4)

Answer Key WORKSHEET 9.5
Testname: W_9_5

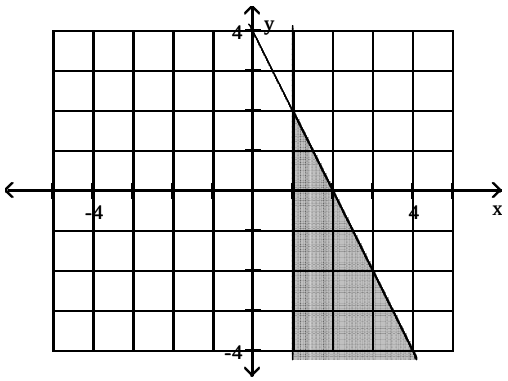
1) $\left[\begin{array}{cc|c} 8 & 2 & 62 \\ 1 & 2 & 6 \end{array}\right]$
2) (−6, 0, −2)
3) $\left[\begin{array}{cc|c} -7 & -5 & 1 \\ -12 & -40 & 0 \end{array}\right]$
4) $\left[\begin{array}{cc|c} -8 & 6 & 1 \\ 39 & -24 & 1 \end{array}\right]$
5) $\left[\begin{array}{ccc|c} 6 & 10 & -7 & 1 \\ 6 & 6 & -1 & 0 \\ 28 & 27 & 0 & -1 \end{array}\right]$
6) Replace R_2 with $-\frac{1}{5}R_2$.
7) (−2, 4)
8) (9, 7, 5)
9) (0, −1, 3)

Answer Key WORKSHEET 9.6
Testname: W_9_6

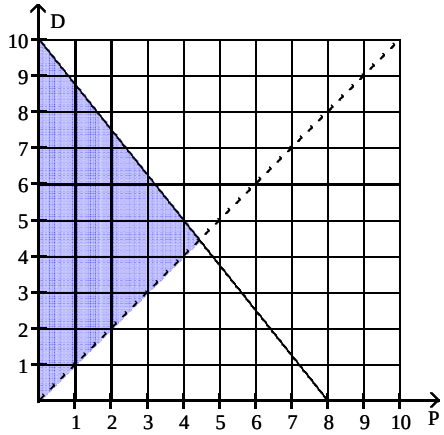
1) 7
2) 46
3) 2
4) (0, 5, 3)
5) (1, 9, 1)
6) 16

Answer Key WORKSHEET 9.7
Testname: W_9_7

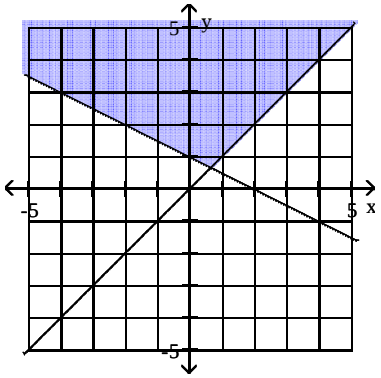
1)



2)



3)



4)