

MATH105. COLLEGE ALGEBRA (MATH105-2) > TAKE ASSESSMENT: EXAM 5

 Take Assessment: Exam 5

Name Exam 5**Instructions****Multiple Attempts** This Test allows 2 attempts. This is attempt number 1.**Force Completion** This Test can be saved and resumed later.▼ **Question Completion Status:****Question 1****5 points** Save**Solve the system of equations by using substitution.**

$$\begin{cases} 5x + 3y = 80 \\ 2x + y = 30 \end{cases}$$

- ☐ $x = 0, y = 0$
- ☐ $x = 0, y = 10$
- ☐ $x = 10, y = 10$
- ☐ $x = 10, y = 0$

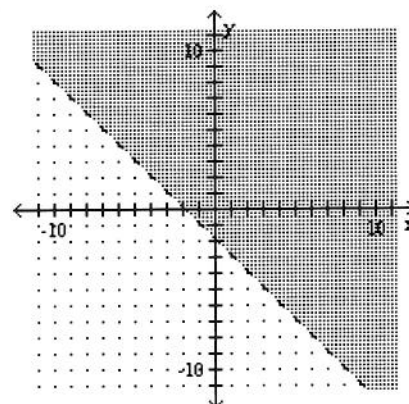
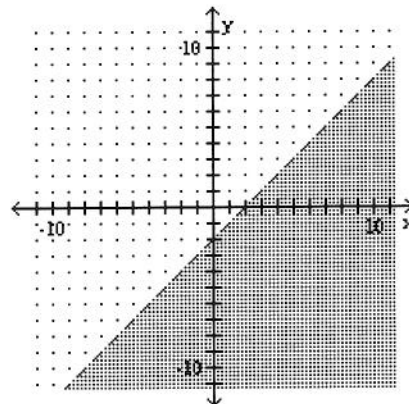
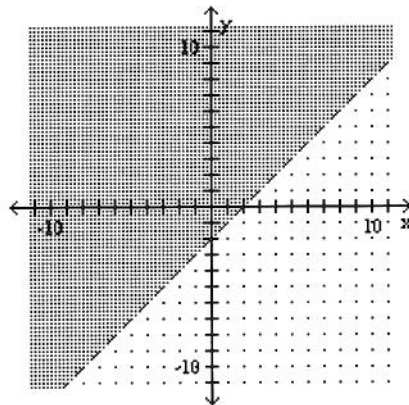
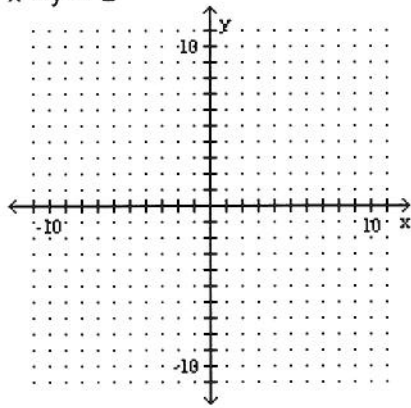
Question 2**5 points** Save**Solve the system of equations.**

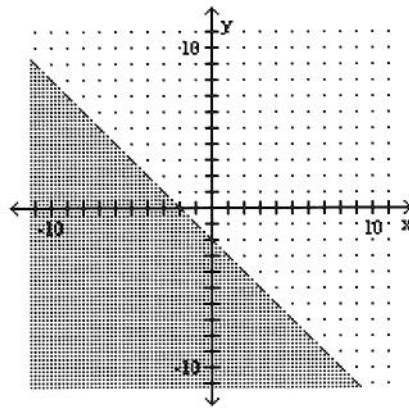
$$\begin{cases} x - y + 3z = 7 \\ 5x + z = 4 \\ x + 4y + z = 24 \end{cases}$$

- ☐ inconsistent (no solution)
- ☐ $x = 4, y = 0, z = 5$
- ☐ $x = 4, y = 5, z = 0$
- ☐ $x = 0, y = 5, z = 4$

Question 3**5 points** Save**Graph the inequality.**

$$x + y < -2$$





Question 4

5 points

Save

Perform the indicated operation, whenever possible.

$$\begin{bmatrix} -4 & -1 \\ 8 & -5 \\ -8 & -5 \end{bmatrix} + \begin{bmatrix} -8 & 7 \\ 6 & -6 \\ 1 & -1 \end{bmatrix}$$

☐
$$\begin{bmatrix} -12 & 6 \\ 14 & -11 \\ -7 & -6 \end{bmatrix}$$

☐
$$\begin{bmatrix} -12 & -5 \\ 14 & -11 \\ -7 & -6 \end{bmatrix}$$

☐
$$\begin{bmatrix} -12 & 6 \\ -14 & -5 \\ -7 & 6 \end{bmatrix}$$

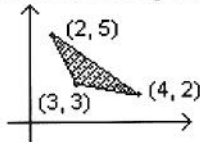
☐
$$\begin{bmatrix} 4 & -8 \\ 2 & 1 \\ -9 & 4 \end{bmatrix}$$

Question 5

5 points

Save

Find the maximum or minimum value of the objective function, subject to the constraints graphed in this feasible region.



$z = x + 7y$. Find maximum.

☐ Maximum 18

☐ Maximum 24

☐ Maximum 30

☐ Maximum 37

Question 6

5 points

Save

Write a system of equations associated with the augmented matrix. Do not solve.

$$\left[\begin{array}{ccc|c} 9 & 3 & 9 & -2 \\ 7 & 0 & 7 & 4 \\ 3 & 4 & 0 & 2 \end{array} \right]$$

- ☐ $\begin{cases} 9x + 3y + 9z = -2 \\ 7x + 7z = 4 \\ 3x + 4z = 2 \end{cases}$
- ☐ $\begin{cases} 9x + 3y + 9z = -2 \\ 7x + 7z = 4 \\ 3x + 4y = 2 \end{cases}$
- ☐ $\begin{cases} 9x - 3y + 9z = -2 \\ 7x + 7z = -4 \\ 3x + 4y = -2 \end{cases}$

Question 7

5 points

Save

Use Cramer's rule to solve the linear system.

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

- ☐ $x = -\frac{2}{17}, y = \frac{11}{17}$
- ☐ $x = \frac{23}{3}, y = -\frac{11}{3}$
- ☐ $x = \frac{2}{3}, y = \frac{1}{3}$
- ☐ $x = \frac{2}{17}, y = -\frac{11}{17}$

Question 8

5 points

Save

Solve the problem.

The Family Fine Arts Center charges \$21 per adult and \$12 per senior citizen for its performances. On a recent weekend evening when 486 people paid admission, the total receipts were \$6894. How many who paid were senior citizens?

- ☐ 208 senior citizens
- ☐ 368 senior citizens
- ☐ 118 senior citizens
- ☐ 278 senior citizens

Question 9

5 points

Save

Solve the system of equations by using substitution.

$$\begin{cases} x + 6y = 6 \\ 8x - 9y = -9 \end{cases}$$

- ☐ $x = 0, y = 0$
- ☐ $x = 0, y = 1$
- ☐ $x = 1, y = 1$
- ☐ $x = 1, y = 0$

Question 10**5 points**[Save](#)**Solve the problem.**

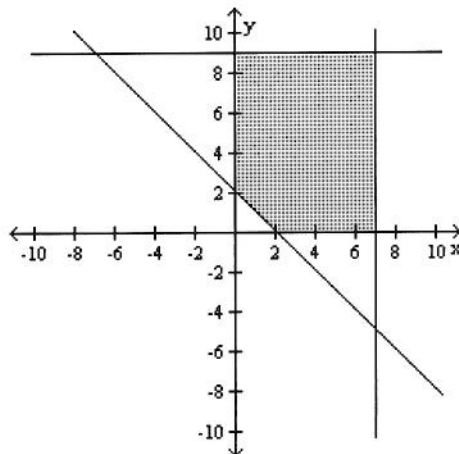
Rob bought 2 pairs of shorts, 3 shirts and a pair of shoes for \$146.64. Jessie bought 3 pairs of shorts, 5 shirts and 2 pairs of shoes for \$256.35. Allen bought a pair of shorts and 4 shirts for \$104.07. What is the price of a pair of shorts? Express answer rounded to two decimal places.

- ☐ \$14.55
- ☐ \$50.40
- ☐ \$22.38
- ☐ \$10.30

Question 11**5 points**[Save](#)**Solve the system.**

$$\begin{cases} x + 2y = -9 \\ 5x + 10y = -45 \end{cases}$$

- ☐ inconsistent (no solution)
- ☐ $(-9, 0)$
- ☐ $(0, 0)$
- ☐ $y = -\frac{x}{2} - 9$, where x is any real number

Question 12**5 points**[Save](#)**Write a system of linear inequalities that has the given graph.**

- ☐ $y \geq 0, x \geq 0, y \leq 9, \text{ and } y + x \geq 2$

- ☐ $y \geq 0, x \geq 0, x \leq 7, y \leq 9, \text{ and } y + x \geq 2$
- ☐ $x \leq 7, y \leq 9, \text{ and } y + x \geq 2$
- ☐ $y \geq 0, x \geq 0, x \leq 7, \text{ and } y + x \geq 2$

Question 13

5 points

[Save](#)

Verify that the values of the variables listed are solutions of the system of equations.

$$\begin{cases} 2x + y = 13 \\ 3x + 2y = 22 \end{cases}$$

$x = 4, y = 5$

- ☐ not a solution
- ☐ solution

Question 14

5 points

[Save](#)

Solve the system of equations.

$$\begin{cases} x - y + 2z = -3 \\ 4x + z = 0 \\ -x + y - 2z = 6 \end{cases}$$

- ☐ $x = 0, y = 3, z = 0$
- ☐ inconsistent (no solution)
- ☐ $x = 0, y = 0, z = 3$
- ☐ $x = 2, y = 3, z = 0$

Question 15

5 points

[Save](#)

Use Cramer's rule to solve the linear system.

$$\begin{cases} 2x + 3y = 14 \\ 2x - 3y = 2 \end{cases}$$

- ☐ $x = 2, y = 4$
- ☐ $x = 4, y = 2$
- ☐ $x = -2, y = 4$
- ☐ $x = -4, y = -2$

Question 16

5 points

[Save](#)

Solve the system using the inverse method.

$$\begin{cases} 2x + 4y - 5z = -8 \\ x + 5y + 2z = -1 \\ 3x + 3y + 3z = 15 \end{cases}$$

- ☐ $x = 5, y = -2, z = 2$
- ☐ $x = -5, y = -2, z = -2$

☐ $x = 5, y = 2, z = -2$

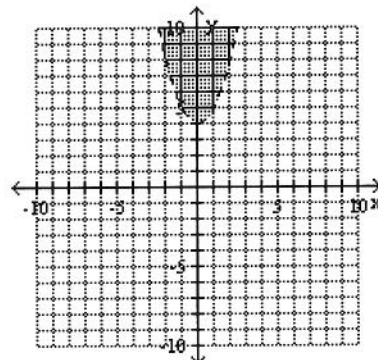
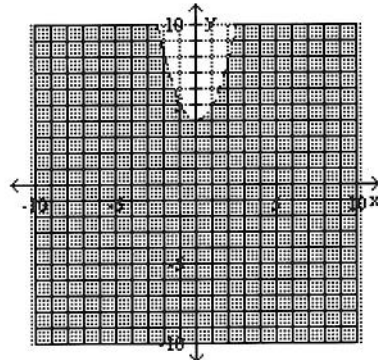
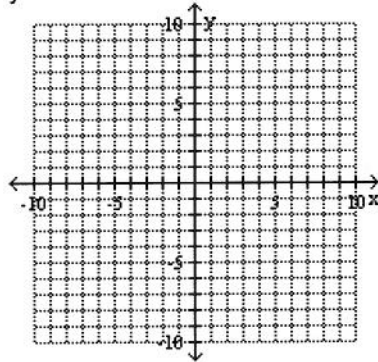
☐ $x = 2, y = 5, z = 2$

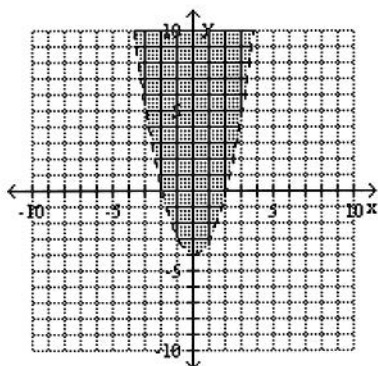
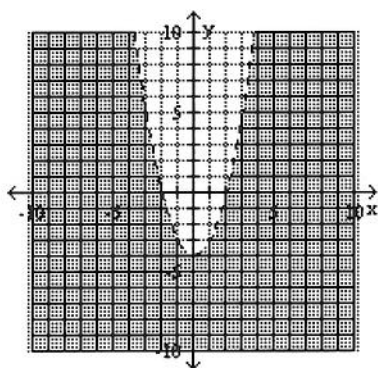
Question 17

5 points

Graph the inequality.

$$y > x^2 - 4$$





Question 18

5 points

Save

Use the properties of determinants to find the value of the second determinant, given the value of the first.

$$\begin{vmatrix} x & y & z \\ u & v & w \\ 1 & 1 & 1 \end{vmatrix} = 2 \quad \begin{vmatrix} x-2 & y-2 & z-2 \\ -2u-1 & -2v-1 & -2w-1 \\ 1 & 1 & 1 \end{vmatrix} = ?$$

- ☐ -2
- ☐ 4
- ☐ 2
- ☐ -4

Question 19

5 points

Save

Perform the matrix multiplication.

$$\begin{bmatrix} -1 & 3 \\ 3 & 2 \end{bmatrix} \begin{bmatrix} -2 & 0 \\ -1 & 2 \end{bmatrix}$$

- ☐ $\begin{bmatrix} 6 & -1 \\ 4 & -8 \end{bmatrix}$
- ☐ $\begin{bmatrix} 2 & -6 \\ -2 & 1 \end{bmatrix}$
- ☐ $\begin{bmatrix} -1 & 6 \\ -8 & 4 \end{bmatrix}$
- ☐ $\begin{bmatrix} 2 & 0 \\ -3 & 4 \end{bmatrix}$

Question 20**5 points**

Use the elimination method to solve the system.

$$\begin{cases} x + y = -5 \\ x - y = 16 \end{cases}$$

- ☐ $x = 5, y = -10.5$
- ☐ $x = 5.5, y = 10.5$
- ☐ $x = 5, y = 5.5$
- ☐ $x = 5.5, y = -10.5$