# 📖 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.**

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

- ○ x = 2, y = -2, z = -4
- ○ x = -4, y = -2, z = 2
- ○ inconsistent (no solution)
- ○ x = -4, y = 2, z = -2

**Question 2**                                                                          **5 points**    Save

**Use Cramer's rule to solve the linear system.**

$$\begin{cases} 3x + 2y = -7 \\ 4x + y = -16 \end{cases}$$

- ○ x = -5, y = 4
- ○ x = 5, y = -4
- ○ x = -4, y = -5
- ○ x = 4, y = -5

**Question 3**                                                                          **5 points**    Save

**Solve the problem.**

The equation of the line passing through the distinct points $(x_1, y_1)$ and $(x_2, y_2)$ is given by $\begin{vmatrix} x & y & 1 \\ x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \end{vmatrix} = 0$. Find the equation of the line passing through the points (3, 5) and (-1, 4).

- ○ x + 4y + 17 = 0

   ⚪   x + 7y + 17 = 0

   ⚪   -x + 4y - 17 = 0

   ⚪   x - 4y + 17 = 0

## Question 4      5 points   | Save |

**Perform the indicated operations and simplify.**

Let $A = \begin{bmatrix} 3 & -4 \\ -2 & 5 \end{bmatrix}$, $B = \begin{bmatrix} 5 & -2 & 8 \\ 1 & 0 & -3 \end{bmatrix}$, and $C = \begin{bmatrix} 7 & -9 & 0 \\ 3 & -5 & 1 \\ -1 & 6 & 2 \end{bmatrix}$. Find $AB + BC$.

⚪ $\begin{bmatrix} 32 & 19 & 40 \\ -15 & 31 & -37 \end{bmatrix}$

⚪ $\begin{bmatrix} 68 & 3 & 31 \\ 8 & -2 & -5 \end{bmatrix}$

⚪ $\begin{bmatrix} -10 & -19 & 12 \\ -15 & 31 & -25 \end{bmatrix}$

⚪ $\begin{bmatrix} 32 & 7 & 50 \\ 5 & -23 & -37 \end{bmatrix}$

## Question 5      5 points   | Save |

**Find the inverse of the matrix.**

$\begin{bmatrix} 2 & -1 \\ -4 & 0 \end{bmatrix}$

⚪ $\begin{bmatrix} -1 & -\dfrac{1}{2} \\[2ex] 0 & -\dfrac{1}{4} \end{bmatrix}$

⚪ $\begin{bmatrix} -\dfrac{1}{2} & -\dfrac{1}{4} \\[2ex] -1 & 0 \end{bmatrix}$

⚪ $\begin{bmatrix} 0 & \dfrac{1}{4} \\[2ex] 1 & -\dfrac{1}{2} \end{bmatrix}$

⚪ $\begin{bmatrix} 0 & -\dfrac{1}{4} \\[2ex] -1 & -\dfrac{1}{2} \end{bmatrix}$

## Question 6      5 points   | Save |

**Find the value of the determinant.**

$$\begin{vmatrix} 12 & -7 \\ -4 & 3 \end{vmatrix}$$

- ○ 64
- ○ 4
- ○ 8
- ○ -8

## Question 7                                                     **5 points**   Save

**Solve the system using the inverse method.**

$$\begin{cases} x + 2y + 3z = -2 \\ x + y + z = -7 \\ -x + y + 2z = -10 \end{cases}$$

- ○ x = -19, y = -61, z = -35
- ○ x = -1, y = -3, z = -2
- ○ x = 15, y = -49, z = 27
- ○ x = -2, y = -28, z = 20

## Question 8                                                     **5 points**   Save

**Write the partial fraction decomposition of the rational expression.**

$$\frac{x - 8}{(x - 4)(x - 5)}$$

- ○ $\dfrac{3}{x - 4} + \dfrac{-4}{x - 5}$
- ○ $\dfrac{4}{x - 4} + \dfrac{3}{x - 5}$
- ○ $\dfrac{-3}{x - 4} + \dfrac{4}{x - 5}$
- ○ $\dfrac{4}{x - 4} + \dfrac{-3}{x - 5}$

## Question 9                                                     **5 points**   Save

**Find the inverse of the matrix.**

$$\begin{bmatrix} 0 & 4 \\ -6 & 5 \end{bmatrix}$$

- ○

$$\begin{bmatrix} \dfrac{5}{24} & -\dfrac{1}{6} \\[2mm] \dfrac{1}{4} & 0 \end{bmatrix}$$

○ $\begin{bmatrix} \dfrac{1}{4} & 0 \\[2mm] \dfrac{5}{24} & -\dfrac{1}{6} \end{bmatrix}$

○ $\begin{bmatrix} \dfrac{5}{24} & \dfrac{1}{6} \\[2mm] -\dfrac{1}{4} & 0 \end{bmatrix}$

○ $\begin{bmatrix} 0 & -\dfrac{1}{6} \\[2mm] \dfrac{1}{4} & \dfrac{5}{24} \end{bmatrix}$

## Question 10                                                                5 points    Save

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

Given $\begin{vmatrix} s & t & u \\ v & w & x \\ 4 & 2 & 8 \end{vmatrix} = 3$, find the value of $\begin{vmatrix} 32-s & 16-t & 64-u \\ v & w & x \\ 4 & 2 & 8 \end{vmatrix}$.

○ -24

○ -3

○ 24

○ 3

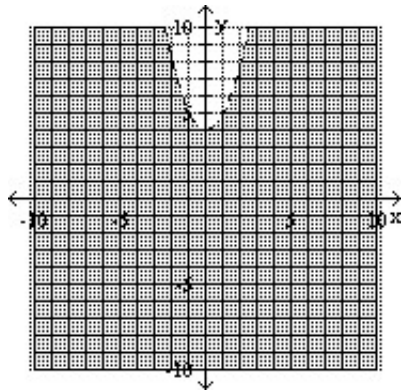## Question 11                                                                5 points    Save

**Solve the system.**

$$\begin{cases} x + y = 1 \\ x + y = -6 \end{cases}$$

○ dependent (many solutions)

○ inconsistent (no solution)

○ (1, -6)

○ (0, -5)

## Question 12                                                                5 points    Save

**Write the partial fraction decomposition of the rational expression.**

$$\frac{x+1}{(x-2)^2(x+4)}$$

○  $$\frac{\dfrac{1}{2}}{(x-2)^2} + \frac{-\dfrac{1}{12}}{x+4}$$

○  $$\frac{12}{x-2} + \frac{2}{(x-2)^2} + \frac{-12}{x+4}$$

○  $$\frac{-1}{x-2} + \frac{\dfrac{1}{4}x}{(x-2)^2} + \frac{-\dfrac{1}{4}}{x+4}$$

○  $$\frac{\dfrac{1}{12}}{x-2} + \frac{\dfrac{1}{2}}{(x-2)^2} + \frac{-\dfrac{1}{12}}{x+4}$$

## Question 13                                                                          5 points   Save

**Graph the inequality.**
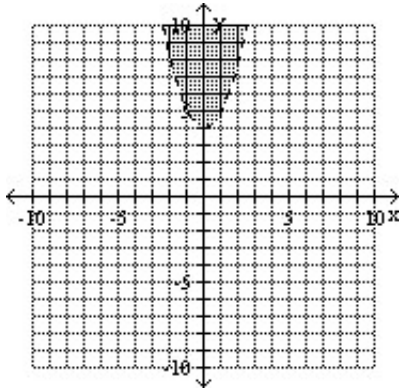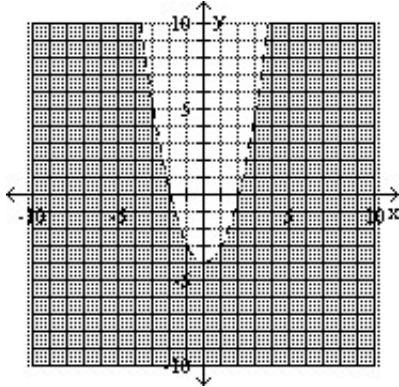
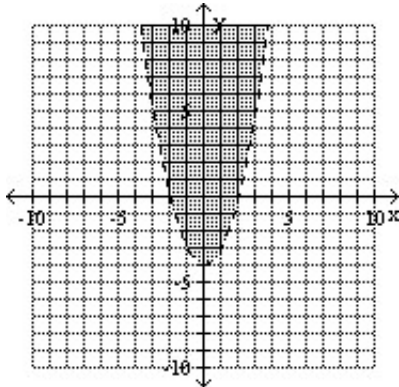$y > x^2 - 4$



○



○

○



○
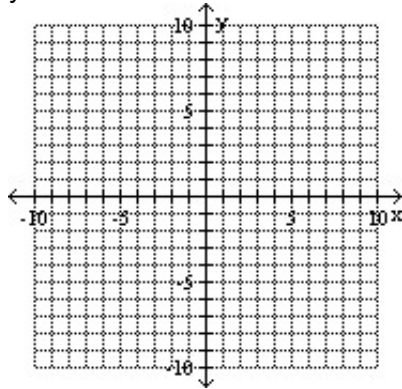


## Question 14                                                                    **5 points**    Save

**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 15                                                                    **5 points**    Save

**Perform the indicated matrix operations.**

Let A = $\begin{bmatrix} 2 & 3 \\ 2 & 6 \end{bmatrix}$ and B = $\begin{bmatrix} 0 & 4 \\ -1 & 6 \end{bmatrix}$. Find 4A + B.

○ $\begin{bmatrix} 8 & 28 \\ 4 & 48 \end{bmatrix}$

○ $\begin{bmatrix} 8 & 16 \\ 7 & 30 \end{bmatrix}$

○ $\begin{bmatrix} 8 & 7 \\ 7 & 12 \end{bmatrix}$

○ $\begin{bmatrix} 8 & 16 \\ 1 & 12 \end{bmatrix}$

## Question 16

**5 points**   Save

**Solve the system of equations.**

$$\begin{cases} x + y + z = 7 \\ x - y + 2z = 7 \\ 5x + y + z = 11 \end{cases}$$

○ x = 1, y = 2, z = 4

○ x = 4, y = 2, z = 1

○ x = 4, y = 1, z = 2

○ x = 1, y = 4, z = 2

## Question 17

**5 points**   Save

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

$$\begin{cases} x - y + 3z = 13 \\ 5x + z = 5 \\ x + 3y + z = 11 \end{cases}$$
x = 5, y = 2, z = 0

○ solution

○ not a solution

## Question 18

**5 points**   Save

**Solve the system of equations by using substitution.**

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

○ x = 5, y = -2

○ x = 5, y = 2

○ x = -5, y = -2

○ x = -5, y = 2

## Question 19

**5 points**   <u>Save</u>

**Solve the system of equations.**

$$\begin{cases} x + 4y - z = 3 \\ x + 5y - 2z = 5 \\ 3x + 12y - 3z = 9 \end{cases}$$

○ x = 3z + 5
  y = z - 2
  z = any real number

○ x = z - 2
  y = -3z - 5
  z = any real number

○ x = -3z - 5
  y = z + 2
  z = any real number

○ inconsistent (no solution)

## Question 20

**5 points**   <u>Save</u>

**Write the augmented matrix for the system.**

$$\begin{cases} 3x + 9y = 36 \\ 6y = 18 \end{cases}$$

○ $\begin{bmatrix} 36 & 9 & | & 3 \\ 18 & 0 & | & 6 \end{bmatrix}$

○ $\begin{bmatrix} 3 & 9 & | & 36 \\ 6 & 18 & | & 0 \end{bmatrix}$

○ $\begin{bmatrix} 6 & 0 & | & 18 \\ 3 & 9 & | & 9 \end{bmatrix}$

○ $\begin{bmatrix} 3 & 9 & | & 36 \\ 0 & 6 & | & 18 \end{bmatrix}$

Save     Submit