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## QNT 101: Introduction to College Algebra

Average: 91.01%

1770 points



# Evaluation quiz correction

## Evaluation Quiz: Week 13 Quiz

**Date:** 2025-01-27

**Status:** Done

**Duration:** 16 minutes

**Score:** 100.0%

# "I don't know": 0

# Success: 10

# Fail: 0

## Responses

0. Write the augmented matrix from the following set of linear equations:



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$$2y + 5z = 1$$

**Score:** 1.0

$$\left[ \begin{array}{ccc|c} 4 & 6 & 0 & 18 \\ 3 & 0 & -2 & 6 \\ 2 & 5 & 0 & 1 \end{array} \right]$$

$$\left[ \begin{array}{ccc|c} 18 & 0 & 6 & 4 \\ 6 & -2 & 0 & 3 \\ 1 & 5 & 2 & 0 \end{array} \right]$$

$$\left[ \begin{array}{ccc|c} 4 & 0 & 6 & 18 \\ 3 & -2 & 0 & 6 \\ 0 & 2 & 5 & 1 \end{array} \right]$$

$$\left[ \begin{array}{ccc|c} 4 & 0 & 18 & 6 \\ 3 & 6 & 0 & -2 \\ 0 & 1 & 2 & 5 \end{array} \right]$$

 I don't know**1. Use Cramer's Rule to solve the following system of linear equations:**

$$x + 4y - 3z = 5$$

$$2x - y + 2z = -1$$

$$x + 2y + z = 4$$



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$(x, y, z) = \left( -\frac{1}{4}, \frac{9}{5}, \frac{13}{20} \right)$

$(x, y, z) = \left( \frac{1}{2}, \frac{1}{5}, -\frac{13}{2} \right)$

$(x, y, z) = \left( \frac{8}{2}, \frac{1}{2}, -\frac{1}{2} \right)$

$(x, y, z) = (-1, 1, 2)$

I don't know

2. Solve the following system of linear equations using Gaussian elimination:

$$4x - 3y = 7$$

$$8x + 6y = 22$$

**Score:** 1.0

$(x, y) = \left( \frac{22}{8}, \frac{7}{6} \right)$

$(x, y) = \left( \frac{29}{12}, \frac{5}{6} \right)$

$(x, y) = \left( \frac{7}{4}, \frac{10}{12} \right)$

$(x, y) = \left( \frac{5}{4}, \frac{6}{7} \right)$



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**3. Select the correct linear equations from the augmented matrix:**

$$\left[ \begin{array}{ccc|c} 1 & 0 & 4 & 8 \\ 0 & 1 & -1 & 3 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

**Score:** 1.0

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

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

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

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

I don't know

**4. Find the determinant of the following matrix:**



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$$\begin{bmatrix} 0 & 0 & 5 \end{bmatrix}$$

**Score:** 1.0

20

10

15

25

I don't know

**5. Write the augmented matrix from the following system of linear equations:**

$$-2x + 2y + z = 7$$

$$2x - 8y + 5z = 0$$

$$19x - 10y + 22z = 3$$

**Score:** 1.0

$$\begin{bmatrix} 3 & -1 & 4 & | & -9 \\ 1 & 6 & -3 & | & 1 \\ -7 & 2 & 8 & | & 4 \end{bmatrix}$$

$$\begin{bmatrix} 3 & 1 & -4 & | & 9 \\ 1 & -6 & 3 & | & 1 \\ 7 & -2 & -8 & | & -4 \end{bmatrix}$$



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$$\left[ \begin{array}{ccc|c} -3 & 1 & -4 & 9 \\ -1 & 6 & 3 & -1 \\ 7 & 2 & 8 & 4 \end{array} \right]$$

I don't know

**6. For the following equation, find the solutions by computing the inverse of the matrix.**

$$\left[ \begin{array}{cc} 3 & 7 \\ 2 & 5 \end{array} \right]$$

**Score:** 1.0

$$\left[ \begin{array}{cc} -5 & 7 \\ 2 & -3 \end{array} \right]$$

$$\left[ \begin{array}{cc} 5 & -7 \\ -2 & 3 \end{array} \right]$$

$$\left[ \begin{array}{cc} 3 & -2 \\ 7 & -5 \end{array} \right]$$

$$\left[ \begin{array}{cc} -3 & 2 \\ -7 & 5 \end{array} \right]$$

I don't know



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$$x - 2y + 4z = 2$$

$$3x + y + 2z = 9$$

**What is the solution for  $(x, y, z)$ ?**

**Score:** 1.0

- $(x, y, z) = (3, 1, 2)$
- $(x, y, z) = \left(\frac{68}{7}, -\frac{57}{7}, -6\right)$
- $(x, y, z) = \left(\frac{5}{2}, \frac{1}{7}, 3\right)$
- $(x, y, z) = \left(\frac{68}{3}, -\frac{57}{2}, -6\right)$
- I don't know

**8. Emily and her business partner, Jack, are launching a small cafe. They need to allocate their monthly budget to rent, utilities, and employee salaries. They've decided that the utilities will cost half as much as the rent, and the employee salaries will be twice the amount spent on rent. The total budget for these three expenses is \$9,000 for the month.**

**Use the information provided to create a system of equations and determine how much Emily and Jack should allocate to each category.**

**Score:** 1.0

- \$2,250 for rent, \$1,125 for utilities, \$5,625 for salaries



1770 points



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 I don't know

$$x + 2y - z = 3$$

$$3x - y + 2z = 8$$

$$2x + 3y + z = 7$$

**Score:** 1.0

$(x, y, z) = \left( \frac{5}{2}, -\frac{1}{2}, \frac{5}{3} \right)$

$(x, y, z) = (2, -1, 1)$

$(x, y, z) = (1, 1, 2)$

$(x, y, z) = \left( \frac{5}{2}, \frac{1}{2}, \frac{1}{1} \right)$

 I don't know