¡Felicitaciones! ¡Aprobaste!

Calificación recibida 100 %

Para Aprobar 80 % o más

Ir al siguiente elemento

1. Knowing nutritional values for 1 cup of whole milk, 1 cup of cereals, and 1 orange, we need to compute the amount of milk, cereals, and oranges to eat in order to get 13 g of fat, 169 g of carbs, and 24 g of protein. What system of linear equations models this example situation? **1 / 1 punto**

Nutritional values:

Whole milk (1 cup) contains 8 g of fat, 11 g of carbs, 8 g of protein

Cereals (1 cup) contains 1 g of fat, 46 g of carbs, 5 g of protein

1 orange contains 1 g of fat, 22 g of carbs, 2 g of protein

Systems of Linear Equations

Cuestionario Práctico • 2 total de puntos

- [x] $8x + y + z = 13$

  $11x + 46y + 22z = 169$

  $8x + 5y + 2z = 24$

- [ ] $8x + 11y + 8z = 13$

  $46x + y + 5z = 169$

  $2x + 22y + z = 24$

- [ ] $11x + 46y + 22z = 169$

  $13x + y + z = 8$

  $2x + 5y + 8z = 24$

- [ ] $x + 8y + z = 24$

  $11x + 46y + 22z = 13$

  $5x + 8y + 2z = 169$

- [ ] $8x + 46y + 2z = 13$

  $11x + y + 22z = 169$

$5x + 8y + 2z = 169$

- ○ $8x + 46y + 2z = 13$

  $11x + y + 22z = 169$

  $8x + 5y + z = 24$

Correcto

2. Solve the following system of linear equations for x, y, and z: **1 / 1 punto**

$8x + y + z = 13$

$11x + 46y + 22z = 169$

$8x + 5y + 2z = 24$

- ○ $x = 1, y = 2, z = 4$
- ○ $x = 3, y = 4, z = 1$
- ◉ $x = 1, y = 2, z = 3$

Correcto

¡Felicitaciones! ¡Aprobaste!

Calificación recibida 100 %

Para Aprobar 80 % o más

Ir al siguiente elemento

1. Knowing nutritional values for 1 slice of bread, 1 slice of cheese, and 1 egg, we need to compute the amount of bread, cheese, and eggs to eat in order to get 46 g of fat, 30 g of carbs, and 39 g of protein. Write A and b for a system of linear equations that models this situation using matrix notation Ax = b?

1 / 1 punto

Nutritional values:

Bread (1 slice): 1 g of fat, 5 g of carbs, 1 g of protein

Cheese (1 slice): 10 g of fat, 0 g of carbs, 7 g of protein

1 egg: 5 g of fat, 0 g of carbs, 6 g of protein

◉ answer:

$$\mathbf{A} = \begin{bmatrix} 1 & 10 & 5 \\ 5 & 0 & 0 \\ 1 & 7 & 6 \end{bmatrix} \quad \mathbf{b} = \begin{bmatrix} 46 \\ 30 \\ 39 \end{bmatrix}$$

○ answer:

$$\mathbf{A} = \begin{bmatrix} 1 & 10 & 5 \\ 5 & 0 & 0 \\ 1 & 7 & 6 \end{bmatrix} \quad \mathbf{b} = \begin{bmatrix} 30 \\ 46 \\ 39 \end{bmatrix}$$

○ answer:

$$\mathbf{A} = \begin{bmatrix} 1 & 5 & 1 \\ 10 & 0 & 7 \\ 5 & 0 & 6 \end{bmatrix} \quad \mathbf{b} = \begin{bmatrix} 46 \\ 30 \\ 39 \end{bmatrix}$$

✓ **Correcto**

2. Solve a system of linear equations for a vector x in matrix notation Ax = b, where **1 / 1 punto**

$$\mathbf{A} = \begin{bmatrix} 1 & 10 & 5 \\ 5 & 0 & 0 \\ 1 & 7 & 6 \end{bmatrix} \quad \mathbf{b} = \begin{bmatrix} 46 \\ 30 \\ 39 \end{bmatrix}$$

Solution of Linear Equations via Eliminatic

Cuestionario Práctico • 3 total de puntos

2. Solve a system of linear equations for a vector x in matrix notation Ax = b, where **1 / 1 punto**

$$\mathbf{A} = \begin{bmatrix} 1 & 10 & 5 \\ 5 & 0 & 0 \\ 1 & 7 & 6 \end{bmatrix} \quad \mathbf{b} = \begin{bmatrix} 46 \\ 30 \\ 39 \end{bmatrix}$$

○ $\mathbf{x} = \begin{bmatrix} 3 \\ 2 \\ 4 \end{bmatrix}$

○ $\mathbf{x} = \begin{bmatrix} 2 \\ 1 \\ 5 \end{bmatrix}$

◉ $\mathbf{x} = \begin{bmatrix} 6 \\ 3 \\ 2 \end{bmatrix}$

✓ **Correcto**

3. Solve a system of linear equations for a vector x in matrix notation Ax = b, where **1 / 1 punto**

Correcto

3. Solve a system of linear equations for a vector x in matrix notation Ax = b, where

1 / 1 punto

$$\mathbf{A} = \begin{bmatrix} 0 & 1 & 8 \\ 31 & 30 & 0 \\ 1 & 4 & 7 \end{bmatrix} \quad \mathbf{b} = \begin{bmatrix} 29 \\ 181 \\ 42 \end{bmatrix}$$

○ $\mathbf{x} = \begin{bmatrix} 1 \\ 5 \\ 1 \end{bmatrix}$

○ $\mathbf{x} = \begin{bmatrix} 2 \\ 3 \\ 1 \end{bmatrix}$

◉ $\mathbf{x} = \begin{bmatrix} 1 \\ 5 \\ 3 \end{bmatrix}$

Correcto

Systems of linear equations

Cuestionario Calificado

Vencimiento 18 de jun. 23:59 PDT

¡Felicitaciones! ¡Aprobaste!

Calificación recibida 80 %

Calificación del último envío 60 %

Para Aprobar 80 % o más

Ir al siguiente elemento

Volver a realizar la tarea en **7 h 53 m**

1. How many solutions does this system have? **1 / 1 punto**

$$\begin{aligned} 7x_1 + 1x_2 &= 35 \\ 7x_1 + 1x_2 &= 35 \end{aligned}$$

Correcto

2. What is the solution to these equations **0 / 1 punto**

Systems of linear equations

Cuestionario Calificado

Vencimiento 18 de jun. 23:59 PDT

2. What is the solution to these equations **0 / 1 punto**

$$\begin{aligned} 7x_1 + 1x_2 &= 35 \\ 7x_1 + 1x_2 &= 35 \end{aligned}$$

If the solution is unique, give the value of x2;

If the solution is not unique, give the value of x2 in the solution of the form (0,x2) assuming x1=0 (or write "None" if this does not exist).

if there is no solution, write "None" as the answer.

⊗ **Incorrecto**

3. Give the value that will appear in the marked positions when the proper multiples of the first equation are subtracted from the other two rows, where the multipliers are chosen to eliminate the coefficients in x1 **0 / 1 punto**

4. Which of the "following" is the matrix form of the system

1 / 1 punto

$$\begin{aligned} 2x_1 + 2x_2 + x_3 &= 40 \\ 1x_1 + 5x_2 + x_3 &= 20 \\ 2x_1 + 5x_3 - x_3 &= 0 \end{aligned}$$

✓ **Correcto**

5.

1 / 1 punto

Which of the following matrices M represents the elementary row operation of computing row2 $-$ 0.5 $\times$ row1? That is, M should satisfy

$$M \cdot \begin{bmatrix} \text{row1} \\ \text{row2} \\ \text{row3} \end{bmatrix} = \begin{bmatrix} \text{row1} \\ \text{row2} - \frac{1}{2} \cdot \text{row1} \\ \text{row3} \end{bmatrix} \qquad \text{example:} \qquad M \cdot \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} = \begin{bmatrix} 1 & 2 & 3 \\ 3.5 & 4.0 & 4.5 \\ 7 & 8 & 9 \end{bmatrix}$$

✓ **Correcto**

LU Decomposition

Cuestionario Práctico • 2 total de puntos

1. Multiplication on the left by the following matrix M has an effect of ... *(complete this sentence)* **1 / 1 punto**

$$M = \begin{bmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1 & 0 & 1 \end{bmatrix}$$

- ○ Has no effect on the rows.
- ○ none of the other answers is correct.
- ◉ Adding the first row to the second and the third row.
- ○ Subtracting the first row from the second and the third row.

✓ **Correcto**

2. What matrix M if multiplied on the left represents the following row operation: add 10 times the second row to the third row? **1 / 1 punto**

LU Decomposition

Cuestionario Práctico • 2 total de puntos

2. What matrix M if multiplied on the left represents the following row operation: add 10 times the second row to the third row?

1 / 1 punto

- ○ none of the other answers is correct.
- ○ answer:

$$M = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 10 & 0 & 1 \end{bmatrix}$$

- ○ answer:

$$M = \begin{bmatrix} 1 & 0 & 0 \\ 10 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

- ◉ answer:

$$M = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 10 & 1 \end{bmatrix}$$