

## Exercises

Find the augmented matrix for the following system of linear equations.

$$2x_1 + 3x_2 - x_3 = 7$$

$$-x_1 + 4x_3 = 5$$

$$6x_1 - 3x_2 = 1$$

## Exercises

The following augmented matrix is in row echelon form. Solve the corresponding linear system.

$$[A|b] = \left[ \begin{array}{ccc|c} -1 & -2 & 1 & -9 \\ 0 & 1 & 1 & 3 \\ 0 & 0 & 2 & -4 \end{array} \right]$$

## Exercises

Solve the system

$$x_1 + x_2 + 3x_3 = 6$$

$$x_1 + 2x_2 + 4x_3 = 9$$

$$2x_1 + x_2 + 6x_3 = 11$$

### Exercises

Show that the vectors  $\mathbf{r}_1$  and  $\mathbf{r}_2$  are linearly independent, where  $\mathbf{r}_1 = [1,4]$  and  $\mathbf{r}_2 = [-2,2]$ .

## Exercises

Find the rank of  $A$  and  $B$ .

$$A = \begin{bmatrix} 1 & -2 \\ -3 & 6 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 2 \\ 1 & -2 \end{bmatrix}$$

## Exercises

Solve, if possible:

$$2x_1 + x_2 + 2x_3 = -1$$

$$4x_1 + 3x_2 + 5x_3 = 1$$

$$6x_1 + 5x_2 + 5x_3 = -3$$

## Exercises

Solve, if possible:

$$x_1 + 2x_2 + 3x_3 = 1$$

$$x_1 + 3x_2 + 4x_3 = 3$$

$$x_1 + 4x_2 + 5x_3 = 4$$

## Exercises

Solve, if possible:

$$2x_1 + 3x_2 + x_3 = 1$$

$$x_1 + x_2 + x_3 = 3$$

$$3x_1 + 4x_2 + 2x_3 = 4$$