
Use Cramer's rule to solve the following system of equations for x:

$$22x - 4y = -38$$
$$-5x + 1y = 9$$

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- A. -4
- B. -3
- C. -2
- D. -1
- E. 0
- F. 1
- G. 2
- H. 3
- I. 4
- J. none of the above

Correct Answers:

- D

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2. (1 pt) Library/ma112DB/set12/sw7_6_33.pg

Use Cramer's rule to solve the system

$$x - y + 2z = -6$$
$$3x + z = -2$$
$$-x + 2y = 4$$

$x =$ ______
$y =$ ______
$z =$ ______

Correct Answers:

- 0
- 2
- -2

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3. (1 pt) Library/Rochester/setLinearAlgebra6Determinants-/ur_la_6_24.pg

Let $A = \begin{bmatrix} -1 & 3 \\ 2 & -5 \end{bmatrix}$.

Find the following:
(a) $\det(A) =$ ____,
(b) the matrix of cofactors $C = \begin{bmatrix} \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ \end{bmatrix}$,
(c) $\mathrm{adj}(A) = \begin{bmatrix} \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ \end{bmatrix}$,
(d) $A^{-1} = \begin{bmatrix} \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ \end{bmatrix}$.

Correct Answers:

- -1
- -5
- -2
- -3
- -1
- -5
- -3
- -2
- -1
- 5
- 3
- 2
- 1

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4. (1 pt) Library/Rochester/setLinearAlgebra6Determinants-/ur_la_6_26.pg

Let $A = \begin{bmatrix} -5e^{3t} & -4e^{4t} \\ 2e^{3t} & 3e^{4t} \end{bmatrix}$.

Find the following:
(a) $\det(A) =$ ______,
(b) the matrix of cofactors $C = \begin{bmatrix} \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ \end{bmatrix}$,
(c) $\mathrm{adj}(A) = \begin{bmatrix} \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ \end{bmatrix}$,
(d) $A^{-1} = \begin{bmatrix} \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ \end{bmatrix}$.

Correct Answers:

- -7 * 2.71828182845905**(7*t)
- 3 * 2.71828182845905**(4*t)
- - 2 * 2.71828182845905**(3*t)
- - -4 * 2.71828182845905**(4*t)
- -5 * 2.71828182845905**(3*t)
- 3 * 2.71828182845905**(4*t)
- - -4 * 2.71828182845905**(4*t)
- - 2 * 2.71828182845905**(3*t)
- -5 * 2.71828182845905**(3*t)
- 3 * 2.71828182845905**(- 3*t)/-7
- - -4 * 2.71828182845905**(- 3*t)/-7
- - 2 * 2.71828182845905**(- 4*t)/-7
- -5 * 2.71828182845905**(- 4*t)/-7

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5. (1 pt) Library/Rochester/setLinearAlgebra6Determinants-/ur_la_6_25.pg

Let $A = \begin{bmatrix} -2 & -2 & 1 \\ -1 & 1 & -2 \\ 1 & 2 & -1 \end{bmatrix}$.

Find the following:
(a) $\det(A) =$ ____,
(b) the matrix of cofactors $C = \begin{bmatrix} \_\_\_\_ & \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ & \_\_\_\_ \\ \_\_\_\_ & \_\_\_\_ & \_\_\_\_ \end{bmatrix}$,

(c) $\operatorname{adj}(A) = \left[\begin{array}{ccc} \_\_\_ & \_\_\_ & \_\_\_ \\ \_\_\_ & \_\_\_ & \_\_\_ \\ \_\_\_ & \_\_\_ & \_\_\_ \end{array}\right]$,

(d) $A^{-1} = \left[\begin{array}{ccc} \_\_\_ & \_\_\_ & \_\_\_ \\ \_\_\_ & \_\_\_ & \_\_\_ \\ \_\_\_ & \_\_\_ & \_\_\_ \end{array}\right]$.

Correct Answers:

- -3
- 3
- -3
- -3
- 0
- 1
- 2
- 3
- -5
- -4
- 3
- 0
- 3
- -3
- 1
- -5
- -3
- 2
- -4
- -1
- 0
- -1
- 1
- -0.333333333333333
- 1.66666666666667
- 1
- -0.666666666666667
- 1.33333333333333

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6. **(1 pt) Library/Rochester/setLinearAlgebra11Eigenvalues-/ur_la_11_17.pg**

The matrix $A = \left[\begin{array}{cc} 11 & -2 \\ 2 & 7 \end{array}\right]$

has one eigenvalue of multiplicity 2. Find this eigenvalue and the dimenstion of the eigenspace.

eigenvalue = _____,

dimension of the eigenspace = _____.

Correct Answers:

- 9
- 1

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7. **(1 pt) Library/Rochester/setLinearAlgebra11Eigenvalues-/ur_la_11_18.pg**

The matrix $A = \left[\begin{array}{ccc} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 2 & 0 & -1 \end{array}\right]$

has one real eigenvalue. Find this eigenvalue and a basis of the eigenspace.

eigenvalue = _____,

Basis: $\left[\begin{array}{c} \_ \\ \_ \\ \_ \end{array}\right], \left[\begin{array}{c} \_ \\ \_ \\ \_ \end{array}\right]$.

Correct Answers:

- -1
- \(\displaystyle\left.\begin{array}{c}
  \mbox{0} \cr
  \mbox{1} \cr
  \mbox{-1} \cr
  \end{array}\right.\) ,\(\displaystyle\left.\begin{array}{c
  \mbox{0} \cr
  \mbox{0} \cr
  \mbox{-1} \cr
  \end{array}\right.\)

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8. **(1 pt) Library/Rochester/setLinearAlgebra11Eigenvalues-/ur_la_11_19.pg**

The matrix $A = \left[\begin{array}{ccc} 0 & 0 & 0 \\ -5 & 5 & 0 \\ 5 & -5 & 0 \end{array}\right]$

has two real eigenvalues, one of multiplicity 1 and one of multiplicity 2. Find the eigenvalues and a basis of each eigenspace.

λ_1 = _____ has multiplicity 1,

Basis: $\left[\begin{array}{c} \_ \\ \_ \\ \_ \end{array}\right]$,

λ_2 = _____ has multiplicity 2,

Basis: $\left[\begin{array}{c} \_ \\ \_ \\ \_ \end{array}\right], \left[\begin{array}{c} \_ \\ \_ \\ \_ \end{array}\right]$.

Correct Answers:

- 5
- \(\displaystyle\left.\begin{array}{c}
  \mbox{0} \cr
  \mbox{-1} \cr
  \mbox{1} \cr
  \end{array}\right.\)
- 0
- \(\displaystyle\left.\begin{array}{c}
  \mbox{0} \cr
  \mbox{0} \cr
  \mbox{-1} \cr
  \end{array}\right.\) ,\(\displaystyle\left.\begin{array}{c
  \mbox{-1} \cr
  \mbox{-1} \cr
  \mbox{2} \cr
  \end{array}\right.\)