

Alternate 5

Math 3321

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(1) Give the number of solutions to the system of equations

$$\begin{aligned} -x + 3y &= 0 \\ -3x + 9y &= 0 \end{aligned}$$

- (a) One solution.
- (b) No solution.
- (c) Infinitely many solutions.
- (d) Two solutions.
- (e) None of these.

(2) Solve for x and z in the given system of equations

$$\begin{aligned} 2x + 6y + 8z &= 16 \\ 4x + 15y + 19z &= 38 \\ 2x + 3z &= 6 \end{aligned}$$

- (a) $x = 0, z = 1$
- (b) $x = 0, z = -2$
- (c) $x = 0, z = 2$
- (d) $x = 1, z = 1$
- (e) None of these.

(3) Determine the value of k so that the system of equations has infinitely many solutions

$$\begin{aligned} 2x - 3y &= kx \\ x - 2y &= ky \end{aligned}$$

- (a) $k = 2$
- (b) $k = 0$
- (c) $k = 1$ or -1
- (d) $k = 3$
- (e) None of these.

(4) Determine the value of k below so that the system of equations has a unique solution

$$\begin{aligned}2x - 3y &= kx \\ x - 2y &= ky\end{aligned}$$

- (a) $k = 2$
- (b) $k = -1$
- (c) $k = 1$
- (d) None of these.

(5) Give the number of solutions to the system of equations

$$\begin{aligned}2x - y + z &= 3 \\ -x + 2y + z &= 1 \\ x + y + 2z &= 3\end{aligned}$$

- (a) One solution.
- (b) No solution.
- (c) Infinitely many solutions.
- (d) Three solutions.
- (e) None of these.

(6) Determine the value of k so that the system of equations is inconsistent

$$\begin{aligned}-x + 3y &= 0 \\ -3x + ky &= 2\end{aligned}$$

- (a) $k = 2$
- (b) $k = 0$
- (c) $k = 1$
- (d) $k = 9$
- (e) None of these.

(7) Give (2,4) entry of the row reduced echelon form of $\begin{pmatrix} 1 & 2 & -3 & -4 \\ 2 & 4 & -5 & -7 \\ -3 & -6 & 11 & 14 \end{pmatrix}$.

- (a) 1
- (b) -1
- (c) 0
- (d) 2
- (e) None of these.

(8) Give (1,3) entry of the row reduced echelon form of $\begin{pmatrix} 1 & a & 1 \\ 0 & 2 & -2 \\ 0 & 1 & -1 \end{pmatrix}$, where a is a positive real number.

- (a) a
- (b) $a + 1$
- (c) $a - 1$
- (d) 0
- (e) None of these.