MAC1140 SEC29 Quiz 10-22-2007 10.2 10.3

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1.

[10.2.1PT]Select the type of solution for the following system

$$\begin{cases} x - y + z = -4 \\ 2x - 3y + 4z = -15 \\ 4x - 5y + 6z = -23 \end{cases}$$

- ○ Exactly three solutions
- ○ No solution
- ○ Unique solution
- ● Infinitely many solutions
- ○ None of these

2.

[10.3.2PT]Choose the type of solution for the linear system having the following augmented matrix

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

- ○ Exactly three solutions
- ● Unique solution
- ○ Infinitely many solutions
- ○ None of these
- ○ No solution

3.

[10.3.4aPT]Choose the correct x, y, or z value for the solution of the system

$$\begin{cases} 3x + 5y - z = -7 \\ x + y + z = -1 \\ 2x + 11z = 7 \end{cases}$$

- ○ $z = -1$

$\begin{cases} x+y+z=-1 \\ 2y-4z=-4 \\ 5z=5 \end{cases}$ (R_2+R_3) $\quad R_3\ -2y+9z=9$, $R_2\ 2y-4z=-4$

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

Plug $z=1$ to R_2: $y=0$

Plug $z=1, y=0$ to R_1

$\begin{cases} x=-2 \\ y=0 \\ z=1. \end{cases}$

4.

[10.3.5aPT]Select the matrix obtained by applying the row operation $\mathbf{R_3 = 3r_2 + r_3}$ to

$$\begin{bmatrix} 1 & 1 & 1 & 6 \\ 0 & 1 & 1 & -6 \\ 0 & -3 & -3 & -9 \end{bmatrix}$$

$3r_2$ 0 3 3 −18

r_3 0 −3 −3 −9

0 0 0 −27

replace.

- $\begin{bmatrix} 1 & 0 & 0 & 12 \\ 0 & 1 & 1 & -6 \\ 0 & -3 & -3 & -9 \end{bmatrix}$
- $\begin{bmatrix} 1 & 1 & 1 & 6 \\ 0 & 1 & 1 & -6 \\ 0 & 0 & -2 & -15 \end{bmatrix}$
- $\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & -6 \\ 0 & -3 & -3 & -9 \end{bmatrix}$
- $\begin{bmatrix} 1 & 1 & 1 & 6 \\ 0 & 1 & 1 & -6 \\ 0 & 0 & 0 & -27 \end{bmatrix}$