

Worksheet

12/07/2020

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Problem quickname: 3339

1)

Solve the linear equation system.

$$\begin{array}{l} \text{a)} \quad \begin{array}{rccccrcr} 3x_1 & + & 5x_2 & + & 10x_3 & + & 4x_4 & = & 10 \\ -21x_1 & + & -39x_2 & + & -72x_3 & + & -32x_4 & = & -22 \\ -18x_1 & + & -26x_2 & + & -49x_3 & + & -27x_4 & = & -2 \\ 27x_1 & + & 81x_2 & + & 81x_3 & + & 97x_4 & = & -700 \end{array} \\ \\ \text{b)} \quad \begin{array}{rccccrcr} 6x_1 & + & 7x_2 & + & -5x_3 & + & 3x_4 & = & -37 \\ 60x_1 & + & 72x_2 & + & -56x_3 & + & 36x_4 & = & -288 \\ -30x_1 & + & -29x_2 & + & 17x_3 & + & 11x_4 & = & 397 \\ -54x_1 & + & -45x_2 & + & -9x_3 & + & 18x_4 & = & 1008 \end{array} \end{array}$$

2)

Solve the linear equation system.

$$\begin{array}{l} \text{a)} \quad \begin{array}{rccccrcr} 4x_1 & + & -10x_2 & + & -7x_3 & + & 10x_4 & = & 40 \\ -20x_1 & + & 53x_2 & + & 29x_3 & + & -59x_4 & = & -203 \\ 20x_1 & + & -47x_2 & + & -50x_3 & + & 50x_4 & = & 242 \\ 24x_1 & + & -33x_2 & + & -123x_3 & + & 16x_4 & = & 378 \end{array} \\ \\ \text{b)} \quad \begin{array}{rccccrcr} 6x_1 & + & x_2 & + & -10x_3 & + & 8x_4 & = & 78 \\ -30x_1 & + & x_2 & + & 41x_3 & + & -33x_4 & = & -380 \\ 48x_1 & + & 56x_2 & + & -156x_3 & + & 117x_4 & = & 671 \\ 54x_1 & + & -21x_2 & + & -13x_3 & + & 58x_4 & = & 895 \end{array} \end{array}$$

3)

Solve the linear equation system. Use the Gaussian Elimination algorithm.

$$\begin{array}{l} \text{a)} \quad \begin{array}{rccccrcr} -8x_1 & + & -7x_2 & + & 5x_3 & + & 8x_4 & = & 72 \\ & & 3x_2 & + & 7x_3 & + & -10x_4 & = & -68 \\ -56x_1 & + & -61x_2 & + & 17x_3 & + & 89x_4 & = & 702 \\ 16x_1 & + & 17x_2 & + & 7x_3 & + & -41x_4 & = & -302 \end{array} \\ \\ \text{b)} \quad \begin{array}{rccccrcr} -7x_1 & + & -3x_2 & + & 4x_3 & + & -5x_4 & = & -26 \\ 63x_1 & + & 29x_2 & + & -40x_3 & + & 40x_4 & = & 243 \\ -21x_1 & + & -7x_2 & + & 15x_3 & + & -28x_4 & = & -107 \\ -35x_1 & + & -15x_2 & + & 34x_3 & + & -49x_4 & = & -230 \end{array} \end{array}$$

4)

Solve the linear equation system. Use the Gaussian Elimination algorithm.

$$\begin{array}{l} -5a + 4b + -7c = 14 \\ \text{a) } 25a + -22b + 28c = -88 \\ -15a + -70c = -80 \end{array}$$

$$\begin{array}{l} -5a + -9b + 9c = -72 \\ \text{b) } -15a + -35b + 33c = -252 \\ 10a + -62b + 48c = -180 \end{array}$$

Good Luck!