

S 215 Nr. 10 f

$$\begin{array}{l} 5x_1 - x_2 - x_3 = -3 \quad | \cdot 1 \\ x_1 + 3x_2 + x_3 = 5 \quad | \cdot (-5) \\ x_1 - 3x_2 + x_3 = -1 \quad | \cdot (-1) \end{array}$$

$$\begin{array}{l} 5x_1 - x_2 - x_3 = -3 \\ -16x_2 - 6x_3 = -28 \\ 6x_2 = 6 \end{array}$$

$$\underline{x_2 = 1}$$

$$-16 \cdot 1 - 6x_3 = -28 \Rightarrow -6x_3 = -28 + 16 = -12 \Rightarrow \underline{x_3 = 2}$$

$$5x_1 - 1 - 2 = -3 \Rightarrow 5x_1 = -3 + 1 + 2 = 0 \Rightarrow \underline{x_1 = 0}$$

$$\mathcal{L} = \{(0; 1; 2)\}$$

S 215 Nr. 11

$$\text{a) } \begin{array}{l} 3x_1 - 2x_2 = 4r \quad | \cdot 1 \\ x_1 + 3x_2 = 5r \quad | \cdot (-3) \end{array}$$

$$\begin{array}{l} x_1 + 3x_2 = 5r \quad \Rightarrow x_1 + 3 \cdot r = 5r \Rightarrow \underline{x_1 = 5r - 3r = 2r} \\ -11x_2 = -11r \quad \Rightarrow \underline{x_2 = r} \end{array}$$

$$\mathcal{L} = \{(2r; r)\}$$

$$\text{b) } \begin{array}{l} 3x_1 + 4x_2 = 7r \quad | \cdot 1 \\ 5x_1 + 4x_2 = r \quad | \cdot (-1) \end{array}$$

$$\begin{array}{l} 3x_1 + 4x_2 = 7r \quad \Rightarrow 3 \cdot (-3r) + 4x_2 = 7r \Rightarrow 4x_2 = 7r + 9r = 16r \\ -2x_1 = 6r \quad \Rightarrow \underline{x_1 = -3r} \quad \quad \quad \underline{x_2 = 4r} \end{array}$$

$$\mathcal{L} = \{(-3r; 4r)\}$$

$$\text{c) } \begin{array}{l} 6x_1 - 3x_2 = 3r - 6 \quad | \cdot 1 \\ 4x_1 - 3x_2 = 2r + 4 \quad | \cdot (-1) \end{array}$$

$$\begin{array}{l} 6x_1 - 3x_2 = 3r - 6 \quad \Rightarrow 6 \cdot \left(\frac{r}{2} - 5\right) - 3x_2 = 3r - 6 \\ 2x_1 = r - 10 \quad \Rightarrow \underline{x_1 = \frac{r}{2} - 5} \end{array}$$

$$3r - 30 - 3x_2 = 3r - 6 \Rightarrow -3x_2 = 3r - 6 - 3r + 30 = 24$$

$$\underline{x_2 = -\frac{24}{3} = -8}$$

$$\mathcal{L} = \left\{ \left( \frac{r}{2} - 5; -8 \right) \right\}$$