S 215 Nr. 11

f.)

$$\begin{array}{rcl|l|l} 2x_1 + 2x_2 + 2x_3 &=& r+2 & \cdot 2 & \cdot 1 \\ 4x_1 - 3x_2 + 2x_3 &=& 0 & \cdot(-1) & \\ x_1 + x_2 + 3x_3 &=& 2r+6 & & \cdot(-2) \end{array}$$

$$2x_1 + 2x_2 + 2x_3 = r+2$$
$$7x_2 + 2x_3 = 2r+4$$
$$-4x_3 = -3r-10$$

$$x_3 = +\frac{3}{4}r + \frac{10}{4} = \frac{3}{4}r + \frac{5}{2}$$

$$7x_2 + 2\left(\frac{3}{4}r + \frac{5}{2}\right) = 2r+4 \Rightarrow 7x_2 = 2r - \frac{3}{2}r + 4 - 5 = \frac{1}{2}r - 1$$

$$x_2 = \frac{1}{14}r - \frac{1}{7}$$

$$2x_1 + 2\cdot\left(\frac{1}{14}r - \frac{1}{7}\right) + 2\left(\frac{3}{4}r + \frac{5}{2}\right) = r+2$$

$$2x_1 + \frac{1}{7}r - \frac{2}{7} + \frac{3}{2}r + 5 = r+2$$

$$2x_1 = r+2 - \frac{1}{7}r + \frac{2}{7} - \frac{3}{2}r - 5$$

$$2x_1 = -\frac{9}{14}r - \frac{19}{7}$$

$$x_1 = -\frac{9}{28}r - \frac{19}{14}$$

$$\mathbb{L} = \left\{\left(-\frac{9}{28}r - \frac{19}{14};\ \frac{1}{14}r - \frac{1}{7};\ \frac{3}{4}r + \frac{5}{2}\right)\right\}$$