NM IT 1 – Serie 7 Rémi Georgiou

Aufgabe 1, a)

$$\begin{array}{rrrrl} 20x_1 + 10x_2 & & = 150 & FC & \\ 50x_1 + 30x_2 + 20x_3 & = 470 & & BC & \left| -\frac{5}{2} \cdot z_1 \right. \\ 200x_1 + 150x_2 + 100x_3 & = 2150 & & EC & \end{array}$$

$$\begin{array}{rrrrl} 20x_1 + 10x_2 + 0 & = 150 & & & \\ 0 + 5x_2 + 20x_3 & = 95 & & & \\ 200x_1 + 150x_2 + 100x_3 & = 2150 & & & \left| -10 \cdot z_1 \right. \end{array}$$

$$\begin{array}{rrrrl} 20x_1 + 10x_2 + 0 & = 150 & & & \\ 0 + 5x_2 + 20x_3 & = 95 & & & \\ 0 + 50x_2 + 100x_3 & = 650 & & & \left| -10 \cdot z_2 \right. \end{array}$$

$$\begin{array}{rrrr} 20x_1 + 10x_2 + 0 & = 150 & & \\ 0 + 5x_2 + 20x_3 & = 95 & & \\ 0 + 0 - 100x_3 & = -300 & & \end{array}$$

$$x_3 = \frac{-300}{-100} = \underline{3}$$

$$x_2 = (95 - 20 \cdot 3) : 5 = \underline{7}$$

$$x_1 = (150 - 10 \cdot 7) : 20 = \underline{4}$$

$$x = \begin{pmatrix} 4 \\ 7 \\ 3 \end{pmatrix}$$

4 × Flugzeugtyp A
7 × " B
3 × " C

Aufgabe 1, b)

$$
\begin{array}{rcrcrcll}
20x_1 & + & 10x_2 & & & = & 120 & \text{FC} \\
50x_1 & + & 30x_2 & + & 20x_3 & = & 350 & \text{BC} \quad \left| -\frac{5}{2} \cdot z_1 \right. \\
200x_1 & + & 150x_2 & + & 100x_3 & = & 1600 & \text{EC}
\end{array}
$$

$$
\begin{array}{rcrcrcll}
20x_1 & + & 10x_2 & & & = & 120 & \\
0 & + & 5x_2 & + & 20x_3 & = & 50 & \\
200x_1 & + & 150x_2 & + & 100x_3 & = & 1600 & \left| -10 \cdot z_1 \right.
\end{array}
$$

$$
\begin{array}{rcrcrcll}
20x_1 & + & 10x_2 & & & = & 120 & \\
0 & + & 5x_2 & + & 20x_3 & = & 50 & \\
0 & + & 50x_2 & + & 100x_3 & = & 400 & \left| -10 \cdot z_2 \right.
\end{array}
$$

$$
\begin{array}{rcrcrcl}
20x_1 & + & 10x_2 & & & = & 120 \\
0 & + & 5x_2 & + & 20x_3 & = & 50 \\
0 & + & 0 & - & 100x_3 & = & -100
\end{array}
$$

$$x_3 = \frac{-100}{-100} = \underline{1}$$

$$x_2 = (50 - 20 \cdot 1) : 5 = \underline{6}$$

$$x_1 = (120 - 10 \cdot 6) : 20 = \underline{3}$$

$$x = \begin{pmatrix} 3 \\ 6 \\ 1 \end{pmatrix}$$

3 x Flugzeugtyp A
6 x " B
1 x " C