

Aufgabe 1. - Serie 6 - Team 07

1. a) Flugzeug A = x $20x + 10y + 0z = 150$
 Flugzeug B = y $50x + 30y + 20z = 470$
 Flugzeug C = z $200x + 150y + 100z = 2150$

$$\begin{array}{ccc|c} 200 & 150 & 100 & 2150 \\ 20 & 10 & 0 & 150 \\ 50 & 30 & 20 & 470 \end{array} \quad \begin{array}{l} \parallel :200 \\ \\ \end{array} \quad \begin{array}{ccc|c} 1 & 3/4 & 1/2 & 107/4 \\ 0 & 1 & 0 & 7 \\ 0 & 0 & 1 & 3 \end{array} \quad \begin{array}{l} \parallel I - 0.5 \cdot II \\ \\ \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 107/4 \\ 20 & 10 & 0 & 150 \\ 50 & 30 & 20 & 470 \end{array} \quad \begin{array}{l} \\ \parallel II - 20 \cdot I \\ \parallel III - 50 \cdot I \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 0 & 37/4 \\ 0 & 1 & 0 & 7 \\ 0 & 0 & 1 & 3 \end{array} \quad \parallel I - 3/4 \cdot II$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 107/4 \\ 0 & -5 & -10 & -65 \\ 0 & -15/2 & -5 & -135/2 \end{array} \quad \begin{array}{l} \\ \parallel : -5 \\ \parallel : -5 \end{array}$$

$$\begin{array}{ccc|c} 1 & 0 & 0 & 4 \\ 0 & 1 & 0 & 7 \\ 0 & 0 & 1 & 3 \end{array} \quad \Rightarrow \quad \begin{array}{l} x = 4 \\ y = 7 \\ z = 3 \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 107/4 \\ 0 & 1 & 2 & 13 \\ 0 & -15/2 & -5 & -135/2 \end{array} \quad \begin{array}{l} \\ \\ \parallel III - (-15/2) \cdot II \end{array}$$

4 Flugzeugtyp A
 7 Flugzeugtyp B
 3 Flugzeugtyp C

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 107/4 \\ 0 & 1 & 2 & 13 \\ 0 & 0 & 10 & 30 \end{array} \quad \begin{array}{l} \\ \\ \parallel :10 \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 107/4 \\ 0 & 1 & 2 & 13 \\ 0 & 0 & 1 & 3 \end{array} \quad \parallel II - 2 \cdot III$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 107/4 \\ 0 & 1 & 0 & 7 \\ 0 & 0 & 1 & 3 \end{array}$$

1b) Flugzeug A = x

Flugzeug B = y

Flugzeug C = z

$$20x + 10y + 0z = 120$$

$$50x + 30y + 20z = 350$$

$$200x + 150y + 100z = 1600$$

$$\begin{array}{ccc|c} 200 & 150 & 100 & 1600 \end{array} \quad // : 200$$

$$\begin{array}{ccc|c} 20 & 10 & 0 & 120 \end{array}$$

$$\begin{array}{ccc|c} 50 & 30 & 20 & 350 \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 8 \end{array}$$

$$\begin{array}{ccc|c} 20 & 10 & 0 & 120 \end{array} \quad // II - 20 \cdot I$$

$$\begin{array}{ccc|c} 50 & 30 & 20 & 350 \end{array} \quad // III - 50 \cdot I$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 8 \end{array}$$

$$\begin{array}{ccc|c} 0 & -5 & -10 & -40 \end{array} \quad // : 5$$

$$\begin{array}{ccc|c} 0 & -15/2 & -5 & -39650 \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 8 \end{array}$$

$$\begin{array}{ccc|c} 0 & 1 & 2 & 8 \end{array}$$

$$\begin{array}{ccc|c} 0 & -15/2 & -5 & -39650 \end{array} \quad // III - (-15/2) \cdot II$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 8 \end{array}$$

$$\begin{array}{ccc|c} 0 & 1 & 2 & 8 \end{array}$$

$$\begin{array}{ccc|c} 0 & 0 & 10 & 10 \end{array} \quad // : 10$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 8 \end{array}$$

$$\begin{array}{ccc|c} 0 & 1 & 2 & 8 \end{array} \quad // II - 2 \cdot III$$

$$\begin{array}{ccc|c} 0 & 0 & 1 & 1 \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 1/2 & 8 \end{array} \quad // I - 0,5 \cdot III$$

$$\begin{array}{ccc|c} 0 & 1 & 0 & 6 \end{array}$$

$$\begin{array}{ccc|c} 0 & 0 & 1 & 1 \end{array}$$

$$\begin{array}{ccc|c} 1 & 3/4 & 0 & 7,5 \end{array} \quad // I - 3/4 \cdot II$$

$$\begin{array}{ccc|c} 0 & 1 & 0 & 6 \end{array}$$

$$\begin{array}{ccc|c} 0 & 0 & 1 & 1 \end{array}$$

$$\begin{array}{ccc|c} 1 & 0 & 0 & 3 \end{array}$$

$$\begin{array}{ccc|c} 0 & 1 & 0 & 6 \end{array}$$

$$\begin{array}{ccc|c} 0 & 0 & 1 & 1 \end{array}$$

$$\Rightarrow x = 3$$

$$y = 6$$

$$z = 1$$

3 Flugzeugtyp A

6 Flugzeugtyp B

1 Flugzeugtyp C