

Übung Solver I:

| | Sorte A | Sorte B | Kapazität |
|--------------|--------------|--------------|-----------|
| Mehl | 360 g / Brot | 180 g / Brot | 2.520 g |
| Weizen | 120 g / Brot | 120 g / Brot | 1.080 g |
| Roggen | 120 g / Brot | 240 g / Brot | 1.920 g |
| Stückgewinne | 30 GE / Brot | 40 GE / Brot | |

Menge von Brotsorte A: x

Menge von Brotsorte B: y

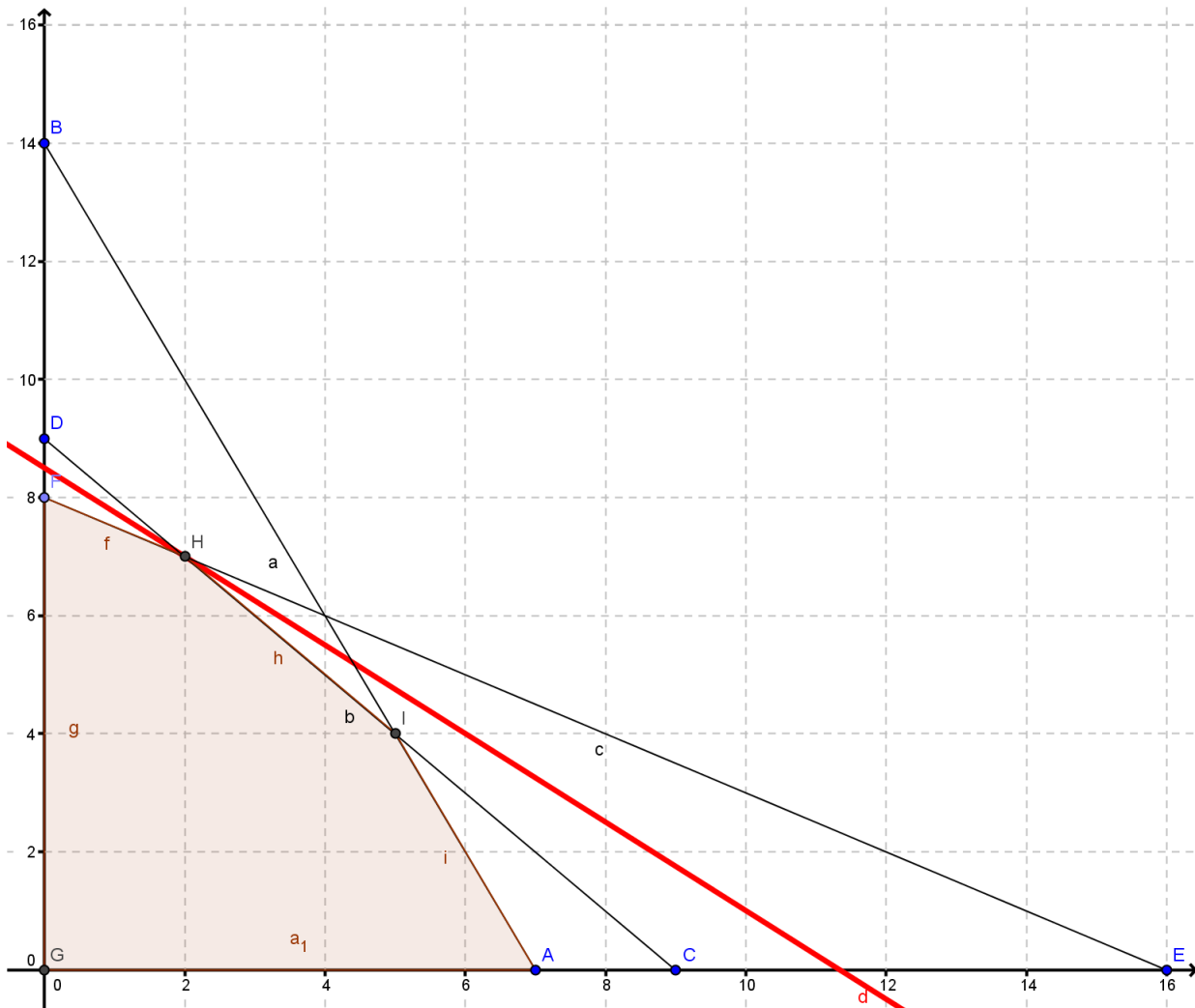
Restriktionen und Zielfunktion:

$$R1: 360x + 180y \leq 2.520$$

$$R2: 120x + 120y \leq 1.080$$

$$R3: 120x + 240y \leq 1.920$$

$$ZF: 30x + 40y \rightarrow \max.$$



Simplex-Algorithmus

$$\begin{array}{l}
 R1: 360x + 180y \leq 2.520 \xrightarrow{\text{Schlupf-Variable}} 360x + 180y + u_1 = 2.520 \\
 R2: 120x + 120y \leq 1.080 \xrightarrow{\text{Schlupf-Variable}} 120x + 120y + u_2 = 1.080 \\
 R3: 120x + 240y \leq 1.920 \xrightarrow{\text{Schlupf-Variable}} 120x + 240y + u_3 = 1.920 \\
 ZF: 30x + 40y \rightarrow \max.
 \end{array}$$

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 ZF: 30x + 40y \rightarrow \max.
 \end{array}$$

| | x | y | u_1 | u_2 | u_3 | b | |
|-----|-----|-----|-------|-------|-------|-------|--------------------------|
| i | 360 | 180 | 1 | 0 | 0 | 2.520 | $2520/180 = 14$ |
| ii | 120 | 120 | 0 | 1 | 0 | 1.080 | $1080/120 = 9$ |
| iii | 120 | 240 | 0 | 0 | 1 | 1.920 | $1920/240 = 8$ $iii/240$ |
| ZF | 30 | 40 | 0 | 0 | 0 | G | |

| | x | y | u_1 | u_2 | u_3 | b | |
|-----|---------------|-----|-------|-------|-----------------|-------|---------------|
| i | 360 | 180 | 1 | 0 | 0 | 2.520 | $i - 180iii$ |
| ii | 120 | 120 | 0 | 1 | 0 | 1.080 | $ii - 120iii$ |
| iii | $\frac{1}{2}$ | 1 | 0 | 0 | $\frac{1}{240}$ | 8 | |
| ZF | 30 | 40 | 0 | 0 | 0 | G | $ZF - 40iii$ |

| | x | y | u_1 | u_2 | u_3 | b | |
|-----|---------------|---|-------|-------|-----------------|-----------|--|
| i | 270 | 0 | 1 | 0 | $-\frac{3}{4}$ | 1.080 | |
| ii | 60 | 0 | 0 | 1 | $-\frac{1}{2}$ | 120 | |
| iii | $\frac{1}{2}$ | 1 | 0 | 0 | $\frac{1}{240}$ | 8 | |
| ZF | 10 | 0 | 0 | 0 | $-\frac{1}{6}$ | $G - 320$ | |

| | x | y | u_1 | u_2 | u_3 | b | |
|-------|---------------|-----|-------|-------|-----------------|---------|----------------------|
| i | 270 | 0 | 1 | 0 | $-\frac{3}{4}$ | 1.080 | $1080/270 = 4$ |
| ii | 60 | 0 | 0 | 1 | $-\frac{1}{2}$ | 120 | $120/60 = 2$ $ii/60$ |
| iii | $\frac{1}{2}$ | 1 | 0 | 0 | $\frac{1}{240}$ | 8 | $8/0,5 = 16$ |
| ZF | 10 | 0 | 0 | 0 | $-\frac{1}{6}$ | $G-320$ | |

| | x | y | u_1 | u_2 | u_3 | b | |
|-------|---------------|-----|-------|----------------|------------------|---------|-----------------------|
| i | 270 | 0 | 1 | 0 | $-\frac{3}{4}$ | 1.080 | $i - 270ii$ |
| ii | 1 | 0 | 0 | $\frac{1}{60}$ | $-\frac{1}{120}$ | 2 | |
| iii | $\frac{1}{2}$ | 1 | 0 | 0 | $\frac{1}{240}$ | 8 | $iii - \frac{1}{2}ii$ |
| ZF | 10 | 0 | 0 | 0 | $-\frac{1}{6}$ | $G-320$ | $ZF - 10ii$ |

| | x | y | u_1 | u_2 | u_3 | b | |
|-------|-----|-----|-------|------------------|------------------|---------|--|
| i | 0 | 0 | 1 | -4,5 | 1,5 | 540 | |
| ii | 1 | 0 | 0 | $\frac{1}{60}$ | $-\frac{1}{120}$ | 2 | |
| iii | 0 | 1 | 0 | $-\frac{1}{120}$ | $\frac{1}{120}$ | 7 | |
| ZF | 0 | 0 | 0 | $-\frac{1}{6}$ | $-\frac{1}{12}$ | $G-340$ | |

Lösung :
$$\begin{pmatrix} x \\ y \\ u_1 \end{pmatrix} = \begin{pmatrix} 2 \\ 7 \\ 540 \end{pmatrix} \text{ mit } G = 340$$