

$$1) \text{ Type A} = x \quad \text{Type B} = y \quad x = \text{Type} \quad y = \text{Type B}$$

$$\text{Nebenbedingungen: I) } 16x + 6y \leq 252 \Rightarrow y \leq -\frac{16}{6}x + 42$$

$$\text{II) } 4x + 12y \leq 168 \Rightarrow y \leq -\frac{1}{3}x + 14$$

$$\text{Zielfunktion: III) } y \leq 2x$$

$$\text{I} \stackrel{!}{=} \text{II}$$

$$-\frac{8}{3}x + 42 \stackrel{!}{=} -\frac{1}{3}x + 14 \quad | +\frac{1}{3}x \quad | -42$$

$$-\frac{7}{3}x \stackrel{!}{=} -28 \quad | : (-\frac{7}{3})$$

$$x = 12$$

$$y \leq -\frac{1}{3}(12) + 14$$

$$y = 10$$

optimaler Punkt $O(12; 10)$

$$g(x, y) = 150x + 100y$$

$$g(12, 10) = 150(12) + 100(10) = 2800 \text{ €}$$

2) Nebenbedingungen

$$2x + y \geq 12 \Rightarrow y \geq -2x + 12$$

$$x + 2y \geq 15 \Rightarrow y \geq -0,5x + 7,5$$

$$x \geq 2$$

$$y \geq 3$$

$$ZF: g(x, y) = 3x + 4y$$

$$-2x + 12 \stackrel{!}{=} -0,5x + 7,5 \quad | +2x \quad | -7,5$$

$$4,5 \stackrel{!}{=} 1,5x$$

$$x = 3$$

$$y \geq -0,5(3) + 7,5$$

$$y = 6$$

$$g(3; 6) = 33$$

$$3) 1. \quad i = 0,5 \cdot 1 + 1 = 1,5$$

$$d = s - i = 4 - 1,5 = 2,5$$

$$x_1 = 1 + 2,5 \cdot 0,4 = 2$$

$$y_1 = 1 + 2,5 \cdot 0,8 = 3$$

$$P_1(2;3)$$

$$0,5(2) + 3 = 4 \quad \checkmark$$

$$2. \quad i = -0,5 \cdot 2 + 0,9 \cdot 3 = 1,7$$

$$d = s - i = 0,64 - 1,7 = -1,06$$

$$x_2 = 2 + (-1,06) \cdot \left(-\frac{25}{28}\right) = \frac{165}{56}$$

$$y_2 = 3 + (-1,06) \cdot \left(\frac{45}{28}\right) = \frac{363}{280}$$

$$P_2\left(\frac{165}{56}; \frac{363}{280}\right)$$

$$-0,5\left(\frac{165}{56}\right) + 0,9\left(\frac{363}{280}\right) = -\frac{429}{1400}$$

