

M O G P L projet

$$1.1) \max g(x) = \min_{i \in I, z} z_i(x) \\ = \begin{cases} z_1(x) & \text{si } z_1(x) < z_2(x) \text{ si } z_1(x) - z_2(x) < 0 \\ z_2(x) & \text{sinon} \end{cases}$$

$$\text{résultat : } x^* = (1, 1, 1, 1, 0, 1, 1, 1, 1, 1) \\ z(x^*) = (148, 150)$$

$$\text{PL : } \max g(x) \\ \begin{cases} x_i \leq 1 \quad \forall i \in \{1, \dots, 10\} \\ 70x_1 - 2x_2 + 18x_3 - 4x_4 + 16x_5 - 6x_6 + 14x_7 - 8x_8 + 12x_9 - 10x_{10} + 10x_1 - 12x_2 + 8x_3 - 14x_4 + 6x_5 - 16x_6 + 4x_7 - 18x_8 + 2x_9 - 70x_{10} \\ = 68x_1 + 14x_2 + 10x_3 + 6x_4 + 2x_5 - 2x_6 - 6x_7 - 10x_8 - 14x_9 - 68x_{10} < 0 \end{cases}$$

$$1.2) \min g(x) = \max_{i \in I, z} z_i(x, \lambda_i) \\ = \max_{i \in I, z} z_i^* - z_i(x) \\ = \max_{i \in I, z} (\max_{y \in x} z_i(y)) - z_i(x)$$

$$\text{résultat : } x^* = (0, 0, 0, 0, 1, 0, 0, 0, 0, 0) \\ z(x^*) = (12, 10)$$

$$z_1^* = 160 \text{ et } z_2^* = 160$$

$$\min g(x) = \begin{cases} z_2(x) & \text{si } 160 - z_2(x) > 160 - z_1(x) \text{ si } 118 - z_2(x) - 160 + z_1(x) = 0 - z_2(x) + z_1(x) > 0 \\ z_1(x) & \text{sinon} \end{cases}$$

$$\text{PL : } \min g(x) \\ \begin{cases} x_i \leq 1 \quad \forall i \in \{1, \dots, 10\} \\ 0 + 70x_1 - 2x_2 + 18x_3 - 4x_4 + 16x_5 - 6x_6 + 14x_7 - 8x_8 + 12x_9 - 10x_{10} + 10x_1 - 12x_2 + 8x_3 - 14x_4 + 6x_5 - 16x_6 + 4x_7 - 18x_8 + 2x_9 - 70x_{10} \\ = 68x_1 + 14x_2 + 10x_3 + 6x_4 + 2x_5 - 2x_6 - 6x_7 - 10x_8 - 14x_9 - 68x_{10} > 0 \end{cases}$$