

Schwefel's Problem 2.22 (F7)

$$F7(x) = \sum_{i=1}^n |x_i| + \prod_{i=1}^n |x_i|$$

Properties: $x \in [-10, 10]^D$, $F7(x^*) = 0$.

Schwefel's Problem 1.2 (F8)

$$F8(x) = \sum_{i=1}^n \left(\sum_{j=1}^i x_j \right)^2$$

Properties: $x \in [-65.536, 65.536]^D$, $F8(x^*) = 0$.

Extended f_{10} (F9)

$$F9(x) = f_{10}(x_n, x_1) + \sum_{i=1}^{n-1} f_{10}(x_i, x_{i+1})$$

$$f_{10}(x, y) = (x^2 + y^2)^{0.25} \cdot [\sin^2(50 \cdot (x^2 + y^2)^{0.1} + 1)]$$

Properties: $x \in [-100, 100]^D$, $F9(x^*) = 0$.

Bohachevsky (F10)

$$F10(x) = \sum_{i=1}^{n-1} (x_i^2 + 2x_{i+1}^2 - 0.3 \cos(3\pi x_i) - 0.4 \cos(4\pi x_{i+1}) + 0.7)$$

Properties: $x \in [-15, 15]^D$, $F10(x^*) = 0$.

Schaffer (F11)

$$F11(x) = \sum_{i=1}^{n-1} (x_i^2 + x_{i+1}^2)^{0.25} \cdot [\sin^2(50 \cdot (x_i^2 + x_{i+1}^2)^{0.1}) + 1]$$

Properties: $x \in [-100, 100]^D$, $F11(x^*) = 0$.