$$x_1^2 = 1 - x_2^2 - x_3^2$$
$$x_2^2 = 1 - x_1^2 - x_3^2$$
$$x_3^2 = 1 - x_1^2 - x_2^2$$

$$Z = 9(1 - x_2^2 - x_3^2) + 4(1 - x_1^2 - x_3^2) + (1 - x_1^2 - x_2^2) - (3(1 - x_2^2 - x_3^2) + 2(1 - x_1^2 - x_3^2) +$$
$$+ (1 - x_1^2 - x_2^2));$$

$$Z = 9 - 9x_2^2 - 9x_3^2 + 4 - 4x_1^2 - 4x_3^2 + 1 - x_1^2 - x_2^2 - (3 - 3x_2^2 - 3_3^2 + 2 - 2x_1^2 - 2x_3^2 + 1 -$$
$$- x_1^2 - x_2^2);$$

$$Z = 14 - 9x_2^2 - 9x_3^2 - 4x_1^2 - 4x_3^2 - x_1^2 + x_1^2 + x_2^2 - 3x_2^2 + 2x_1^2 - 2x_1^2 - x_2^2;$$

$$Z = 14 - 13x_1^2 - 13x_2^2 - 13x_3^2.$$

$$Z_{max} = 14 - 13\left(\frac{1}{3}\right) - 13\left(\frac{1}{3}\right) - 13\left(\frac{1}{3}\right) = 14 - \frac{13}{3} - \frac{13}{3} - \frac{13}{3} = 14 - \frac{39}{3} = 14 - 13 = 1.$$

$$Z_{min} = 14 - 13(1) - 13(1) - 13(1) = 14 - 13 - 13 - 13 = 14 - 39 = -25.$$