

Tabelle 1

$$(x_1 - x_2)x + (y_1 - y_2)y + (z_1 - z_2)z = (w_1 - w_2)/2$$

$$(x_1 - x_3)x + (y_1 - y_3)y + (z_1 - z_3)z = (w_1 - w_3)/2$$

$$x = a_1z + b_1$$

$$y = a_2z + b_2$$

$$a_1 = \frac{1}{d}[(z_2 - z_1)(y_3 - y_1) - (z_3 - z_1)(y_2 - y_1)]$$

$$b_1 = -\frac{1}{2d}[(w_2 - w_1)(y_3 - y_1) - (w_3 - w_1)(y_2 - y_1)]$$

$$d = (y_2 - y_1)(x_3 - x_1) - (y_3 - y_1)(x_2 - x_1)$$

$$a_2 = -\frac{1}{d}[(z_2 - z_1)(x_3 - x_1) - (z_3 - z_1)(x_2 - x_1)]$$

$$b_2 = \frac{1}{2d}[(w_2 - w_1)(x_3 - x_1) - (w_3 - w_1)(x_2 - x_1)]$$

$$w_i = x_i^2 + y_i^2 + z_i^2$$

$$z_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a = a_1^2 + a_2^2 + 1$$

$$b = (a_1(b_1 - x_1) + a_2(b_2 - y_1) - z_1)$$

$$c = (b_1 - x_1)^2 + (b_2 - y_1)^2 + z_1^2 - r^2$$