

1. (a)

$$\begin{bmatrix} 3.7 \\ 8.0 \\ -6.1 \\ -2.3 \\ -5.8 \\ -6.2 \\ -2.2 \\ -6.1 \\ 8.9 \end{bmatrix} = \begin{bmatrix} -1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1 \\ 0 & -1 & 0 & 0 \\ 0 & 1 & 0 & -1 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} h_A \\ h_C \\ h_E \\ h_C \end{bmatrix} - \begin{bmatrix} \hat{r}_1 \\ \hat{r}_2 \\ \hat{r}_3 \\ \hat{r}_4 \\ \hat{r}_5 \\ \hat{r}_6 \\ \hat{r}_7 \\ \hat{r}_8 \\ \hat{r}_9 \end{bmatrix}$$

(b)

$$\begin{bmatrix} h_A \\ h_C \\ h_E \\ h_G \end{bmatrix} = \begin{bmatrix} 4.69 \\ 5.9967 \\ 6.1633 \\ 8.39 \end{bmatrix}$$

2. (a)

$$F_{\text{Taylor}}(x_1, x_2) = 4x_1 + 4x_2 - 8$$

3. (a)

$$\begin{bmatrix} b_A - b_A^0 \\ b_B - b_B^0 \\ b_C - b_C^0 \\ b_D - b_D^0 \end{bmatrix} = \begin{bmatrix} j_{Ax_P} & j_{Ay_P} \\ j_{Bx_P} & j_{By_P} \\ j_{Cx_P} & j_{Cy_P} \\ j_{Dx_P} & j_{Dy_P} \end{bmatrix} \begin{bmatrix} (x_P - x_P^0) \\ (y_P - y_P^0) \end{bmatrix} - \begin{bmatrix} \hat{r}_A \\ \hat{r}_B \\ \hat{r}_C \\ \hat{r}_D \end{bmatrix}$$

hvor

$$j_{Ax_P} = \frac{x_P^0 - x_A}{b_A^0}$$

og

$$b_A^0 = \sqrt{(x_P^0 - x_A)^2 + (y_P^0 - y_A)^2}$$

(de andre j 'er og b 'er er magen til bare med y og/eller B, C og D sat ind i stedet for x og A)

(b)
$$\begin{bmatrix} x_P^1 \\ y_P^1 \end{bmatrix} = \begin{bmatrix} 5 \\ 6.414 \end{bmatrix}$$

(c)
$$\begin{bmatrix} x_P^2 \\ y_P^2 \end{bmatrix} = \begin{bmatrix} 5 \\ 6.398 \end{bmatrix}$$

(d)
$$\begin{bmatrix} x_P^3 \\ y_P^3 \end{bmatrix} = \begin{bmatrix} 5 \\ 6.398 \end{bmatrix}$$

(f) Afstand til A og B : 8.120
 Afstand til C og D : 6.162