





j	д	d	a	a
0	0	130	0	180°
1	₽,*	0	71	180°
2	A*	0	82	90°
3	θ**	0	160	0°

$$A_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 130 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$A_{1} = \begin{bmatrix} C_{1} & S_{1} & O & 11C_{1} \\ S_{1} & -C_{1} & O & 11S_{1} \\ O & O & -1 & O \\ O & O & O & 1 \end{bmatrix}$$

$$A_{2} = \begin{cases} C_{2} & 0 & S_{2} & 82C_{2} \\ S_{2} & 0 & -C_{2} & 82S_{2} \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{cases}$$

$$A_3 = \begin{bmatrix} C_3 & -S_3 & 0 & 160 C_3 \\ S_3 & C_3 & 0 & 160 S_3 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_{1}^{-1} = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & -1 & 130 \end{bmatrix} \begin{bmatrix} C_{1} & S_{1} & 0 & 11C_{1} \\ S_{1} & -C_{1} & 0 & 11S_{1} \\ 0 & 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_{1}^{2} = \begin{bmatrix} C_{1} & S_{1} & 0 & 17C_{1} \\ -S_{1} & C_{1} & 0 & -77S_{1} \\ 0 & 0 & 1 & 130 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_{2}^{-1} = \begin{cases} C_{1}C_{2} + 5_{1}S_{2} & 0 & C_{1}S_{2} - 5_{1}C_{2} & 82C_{1}C_{2} + 82S_{1}S_{2} + 17C_{1} \\ -5_{1}C_{2} + C_{1}S_{2} & 0 & -5_{1}S_{2} - C_{1}C_{2} & -82S_{1}C_{2} + 82C_{1}S_{2} - 17S_{1} \\ 0 & 0 & 0 & 130 \end{cases}$$

$$H_{3}^{-1} = \begin{bmatrix} C(1-2) & 0 & 512 & 82C(1-2) & 777C_{1} \\ 512 & 0 & -C(1-2) & 82512 & -775_{1} \\ 0 & 1 & 0 & 130 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_{3}^{-1} = \begin{bmatrix} C(1-2) & 0 & S_{12} & 82C(1-2) & 77C_{1} \\ S_{12} & 0 & -C(1-2) & 82S_{12} & -77S_{1} \\ 0 & 1 & 0 & 130 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\begin{bmatrix} C_{3} - S_{3} & 0 & 160C_{3} \\ S_{3} & C_{3} & 0 & 160S_{3} \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$H_{3}^{-1} = \begin{bmatrix} C_{(1-2)}C_{3} & -C_{(1-2)}S_{3} & S_{12} & |60C_{(1-2)}C_{3} + 82C_{(1-2)} + 17C_{7} \\ S_{12}C_{3} & -S_{12}S_{3} & -C_{(1-2)} & |60S_{12}C_{3} + 82S_{12} - 77S_{7} \\ S_{3} & C_{3} & 0 & |160S_{3} + |130 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$