Transformation	2-D: Homogeneous Co-ordinates	3-D: Homogeneous Co-ordinates
1. Rotation	$R(\theta) = \begin{bmatrix} \cos\theta & \sin\theta & 0 \\ -\sin\theta & \cos\theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$	$R(x,\alpha) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos\alpha & \sin\alpha & 0 \\ 0 & -\sin\alpha & \cos\alpha & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$, $R(y,\beta) = \begin{bmatrix} \cos\beta & 0 & -\sin\beta & 0 \\ 0 & 1 & 0 & 0 \\ \sin\beta & 0 & \cos\beta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$, $R(z,\gamma) = \begin{bmatrix} \cos\gamma & \sin\gamma & 0 & 0 \\ -\sin\gamma & \cos\gamma & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
chain rotation	$R(\theta) = \begin{bmatrix} \cos(\theta_1+\theta_2+\ldots+\theta_N) & \sin(\theta_1+\theta_2+\ldots+\theta_N) & 0 \\ -\sin(\theta_1+\theta_2+\ldots+\theta_N) & \cos(\theta_1+\theta_2+\ldots+\theta_N) & 0 \\ 0 & 0 & 1 \end{bmatrix}$	
2. Translation	$T(\Delta x, \Delta y) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ \Delta x & \Delta y & 1 \end{bmatrix}$	$T(\Delta x, \Delta y, \Delta z) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ \Delta x & \Delta y & \Delta z & 1 \end{bmatrix}$
chain translation	$T = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ \Delta x_1+\Delta x_2+\ldots+\Delta x_N & \Delta y_1+\Delta y_2+\ldots+\Delta y_N & 1 \end{bmatrix}$	
3. Scaling	$S(j,k) = \begin{bmatrix} j & 0 & 0 \\ 0 & k & 0 \\ 0 & 0 & 1 \end{bmatrix}$	$S = \begin{bmatrix} S_x & 0 & 0 & 0 \\ 0 & S_y & 0 & 0 \\ 0 & 0 & S_z & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$
4. Reflections	$M(x) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$, $M(y) = \begin{bmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	$M(x,y) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$, $M(x,z) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & -1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$, $M(y,z) = \begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

Note: Positive angles are counter-clockwise as viewed from the positive end of the subject axis.