

b) $P_{NDC,b} = P_{cup,b} / P_{cup,b}[3]$ - LAST ELEMENT OF $P_{cup,b}$

$$P_{NDC,b} = \frac{1}{11.2} \begin{bmatrix} 0 \\ -0.9 \\ 13.44 \\ 11.2 \end{bmatrix} = \begin{bmatrix} 0 \\ -0.6 \\ 1.2 \\ 1 \end{bmatrix}$$

c) $P_{NDC,c} = P_{cup,c} / P_{cup,c}[3]$ - LAST ELEMENT OF $P_{cup,c}$

$$P_{NDC,c} = -\frac{1}{11.3} \begin{bmatrix} -10.8 \\ 1.7 \\ 13.55 \\ 11.3 \end{bmatrix} = \begin{bmatrix} -0.96 \\ 0.15 \\ 1.2 \\ 1 \end{bmatrix}$$

d) $P_{NDC,d} = P_{cup,d} / P_{cup,d}[3]$ - LAST ELEMENT OF $P_{cup,d}$

$$P_{NDC,d} = \frac{1}{5.9} \begin{bmatrix} 2.6 \\ -4.7 \\ 8.04 \\ 5.9 \end{bmatrix} = \begin{bmatrix} 0.4 \\ -0.8 \\ 1.36 \\ 1 \end{bmatrix}$$

10) a) $P_{DCS,a} = M_{vp} * P_{NDCS,a}$

$$P_{DCS,a} = \begin{bmatrix} 100 & 0 & 0 & 99.5 \\ 0 & -100 & 0 & 99.5 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} -1.8 \\ -0.8 \\ 1.31 \\ 1 \end{bmatrix} = \begin{bmatrix} 80.5 \\ 179.5 \\ 1.31 \\ 1 \end{bmatrix}$$

b) $P_{DCS,b} = M_{vp} * P_{NDCS,b}$

$$P_{DCS,b} = \begin{bmatrix} 100 & 0 & 0 & 99.5 \\ 0 & -100 & 0 & 99.5 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 0 \\ -0.6 \\ 1.2 \\ 1 \end{bmatrix} = \begin{bmatrix} 99.5 \\ 159.5 \\ 1.2 \\ 1 \end{bmatrix}$$

c) $P_{DCS,c} = M_{vp} * P_{NDCS,c}$

$$P_{DCS,c} = \begin{bmatrix} 100 & 0 & 0 & 99.5 \\ 0 & -100 & 0 & 99.5 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} -0.96 \\ 0.15 \\ 1.2 \\ 1 \end{bmatrix} = \begin{bmatrix} 3.5 \\ 84.5 \\ 1.2 \\ 1 \end{bmatrix}$$

d) $P_{DCS,d} = M_{vp} * P_{NDCS,d}$

$$P_{DCS,d} = \begin{bmatrix} 100 & 0 & 0 & 99.5 \\ 0 & -100 & 0 & 99.5 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 0.4 \\ -0.8 \\ 1.36 \\ 1 \end{bmatrix} = \begin{bmatrix} 139.5 \\ 179.5 \\ 1.36 \\ 1 \end{bmatrix}$$