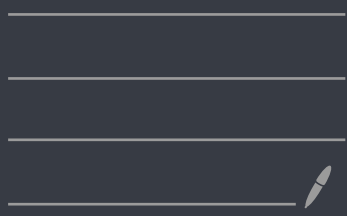

1) $K(\omega) = \begin{cases} 0 : & \omega \leq 0 \\ \omega : & \omega > 0 \end{cases}$

2) $\begin{pmatrix} \omega^* \\ x^* \end{pmatrix} : \begin{cases} \begin{pmatrix} \frac{v_1+v_2}{2} \\ \frac{v_1+v_2}{2} \end{pmatrix} : & \frac{v_1+v_2}{2} \geq 0 \\ \begin{pmatrix} v_1 \\ 0 \end{pmatrix} : & v_1 \leq 0 \\ \begin{pmatrix} 0 \\ 0 \end{pmatrix} : & \frac{v_1+v_2}{2} \leq 0 \\ & v_1 \geq 0 \end{cases}$

Both Valid When $\frac{v_1+v_2}{2} \geq 0$ & $v_1 \leq 0$

2)

$$\begin{pmatrix} \omega^* \\ x^* \end{pmatrix} = \begin{cases} \begin{pmatrix} \frac{v_1+v_2}{2} \\ \frac{v_1+v_2}{2} \end{pmatrix} & : \ \frac{v_1+v_2}{2} \geq 0 \\ & \quad v_1 \geq 0 \\ \begin{pmatrix} v_1 \\ 0 \end{pmatrix} & : \ v_1 \leq 0 \\ & \quad \frac{v_1+v_2}{2} \leq 0 \\ \begin{pmatrix} 0 \\ 0 \end{pmatrix} & : \ \frac{v_1+v_2}{2} \leq 0 \\ & \quad v_1 \geq 0 \\ \begin{pmatrix} \frac{v_1+v_2}{2} \\ \frac{v_1+v_2}{2} \end{pmatrix} \text{ or } \begin{pmatrix} v_1 \\ 0 \end{pmatrix} & : \ \frac{v_1+v_2}{2} \geq 0 \\ & \quad v_1 \leq 0 \end{cases}$$