

a)  $g \cap h = \{A\}$

$$\begin{pmatrix} -7 \\ 7 \end{pmatrix} + r \begin{pmatrix} 3 \\ -2 \end{pmatrix} = \begin{pmatrix} 4 \\ 7 \end{pmatrix} + s \begin{pmatrix} 1 \\ 3 \end{pmatrix} \Rightarrow \begin{array}{l|l} 3r - s = 11 & \cdot 3 \\ -2r - 3s = 0 & \cdot (-1) \\ \hline 3r - s = 11 \\ 11r = 33 & \Rightarrow \underline{\underline{r = 3}} \end{array}$$

$$\underline{\underline{\vec{OA} = \begin{pmatrix} -7 \\ 7 \end{pmatrix} + 3 \begin{pmatrix} 3 \\ -2 \end{pmatrix} = \begin{pmatrix} 2 \\ 1 \end{pmatrix}, \quad A(2|1)}}$$

$g \cap i = \{B\}$

$$\begin{pmatrix} -7 \\ 7 \end{pmatrix} + r \begin{pmatrix} 3 \\ -2 \end{pmatrix} = \begin{pmatrix} 5 \\ -1 \end{pmatrix} + t \begin{pmatrix} -2 \\ 5 \end{pmatrix} \Rightarrow \begin{array}{l|l} 3r + 2t = 12 & \cdot 2 \\ -2r - 5t = -8 & \cdot 3 \\ \hline 3r + 2t = 12 \\ -11t = 0 & \Rightarrow \underline{\underline{t = 0}} \end{array}$$

$$\underline{\underline{\vec{OB} = \begin{pmatrix} 5 \\ -1 \end{pmatrix} + 0 \begin{pmatrix} -2 \\ 5 \end{pmatrix} = \begin{pmatrix} 5 \\ -1 \end{pmatrix}, \quad B(5|-1)}}$$

$h \cap i = \{C\}$

$$\begin{pmatrix} 4 \\ 7 \end{pmatrix} + s \begin{pmatrix} 1 \\ 3 \end{pmatrix} = \begin{pmatrix} 5 \\ -1 \end{pmatrix} + t \begin{pmatrix} -2 \\ 5 \end{pmatrix} \Rightarrow \begin{array}{l|l} s + 2t = 1 & \cdot 3 \\ 3s - 5t = -8 & \cdot (-1) \\ \hline s + 2t = 1 \\ 11t = 11 & \Rightarrow \underline{\underline{t = 1}} \end{array}$$

$$\underline{\underline{\vec{OC} = \begin{pmatrix} 5 \\ -1 \end{pmatrix} + 1 \cdot \begin{pmatrix} -2 \\ 5 \end{pmatrix} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}, \quad C(3|4)}}$$