



Line  $(x_1, y_1) \rightarrow (x_2, y_2)$   
can have any slope.

$(x_1, y_1)$  &  $(x_2, y_2)$  are known.  $(x_3, y_3)$  is also known  
Task - find  $(x_3, y_3)$

$$\vec{a} = \begin{pmatrix} x_2 \\ y_2 \end{pmatrix} - \begin{pmatrix} x_1 \\ y_1 \end{pmatrix}$$

$$\begin{bmatrix} x_3 \\ y_3 \end{bmatrix} =$$



$$\cos \theta = \frac{\vec{a} \cdot \vec{b}}{|\vec{a}| |\vec{b}|}$$