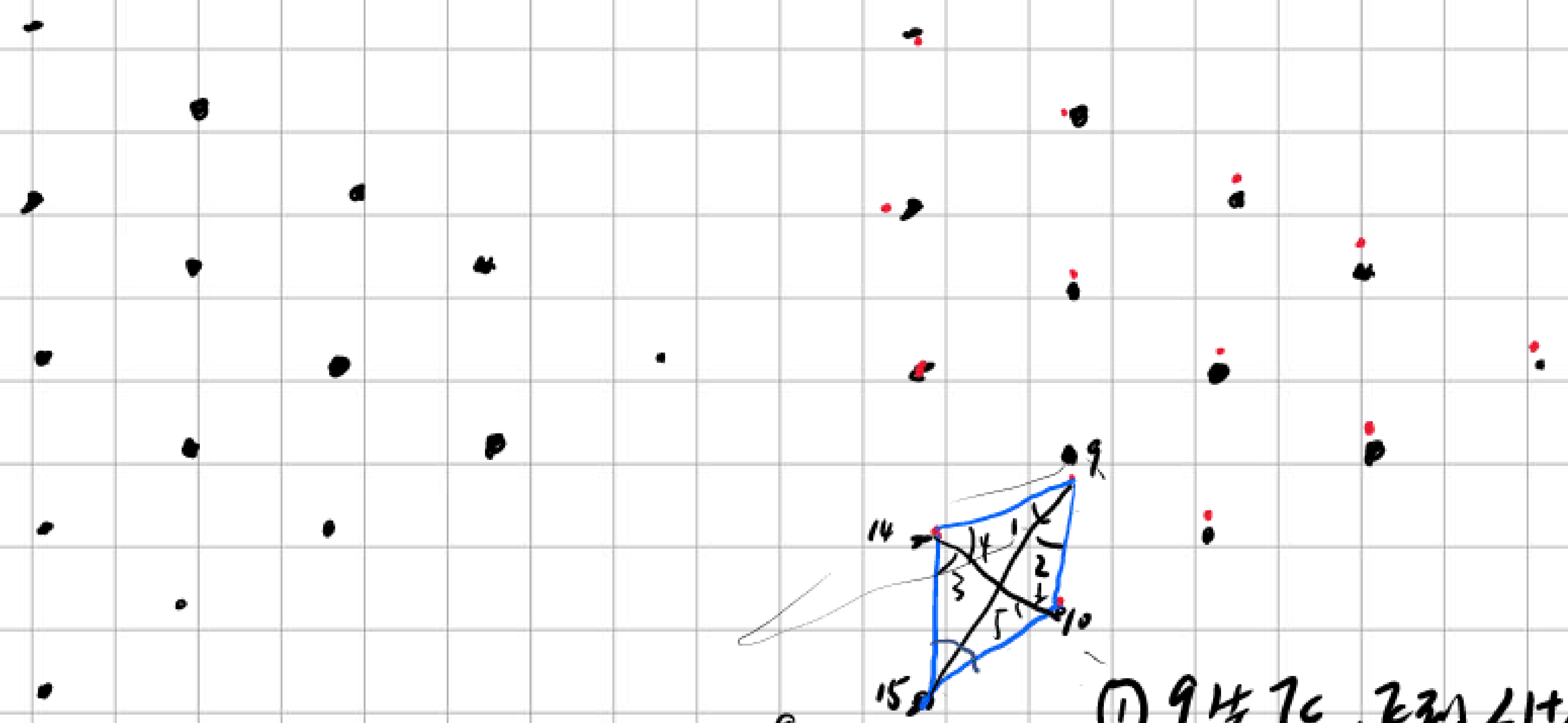


① 9先飞，飞到$\angle 1+\angle 2=60^\circ$

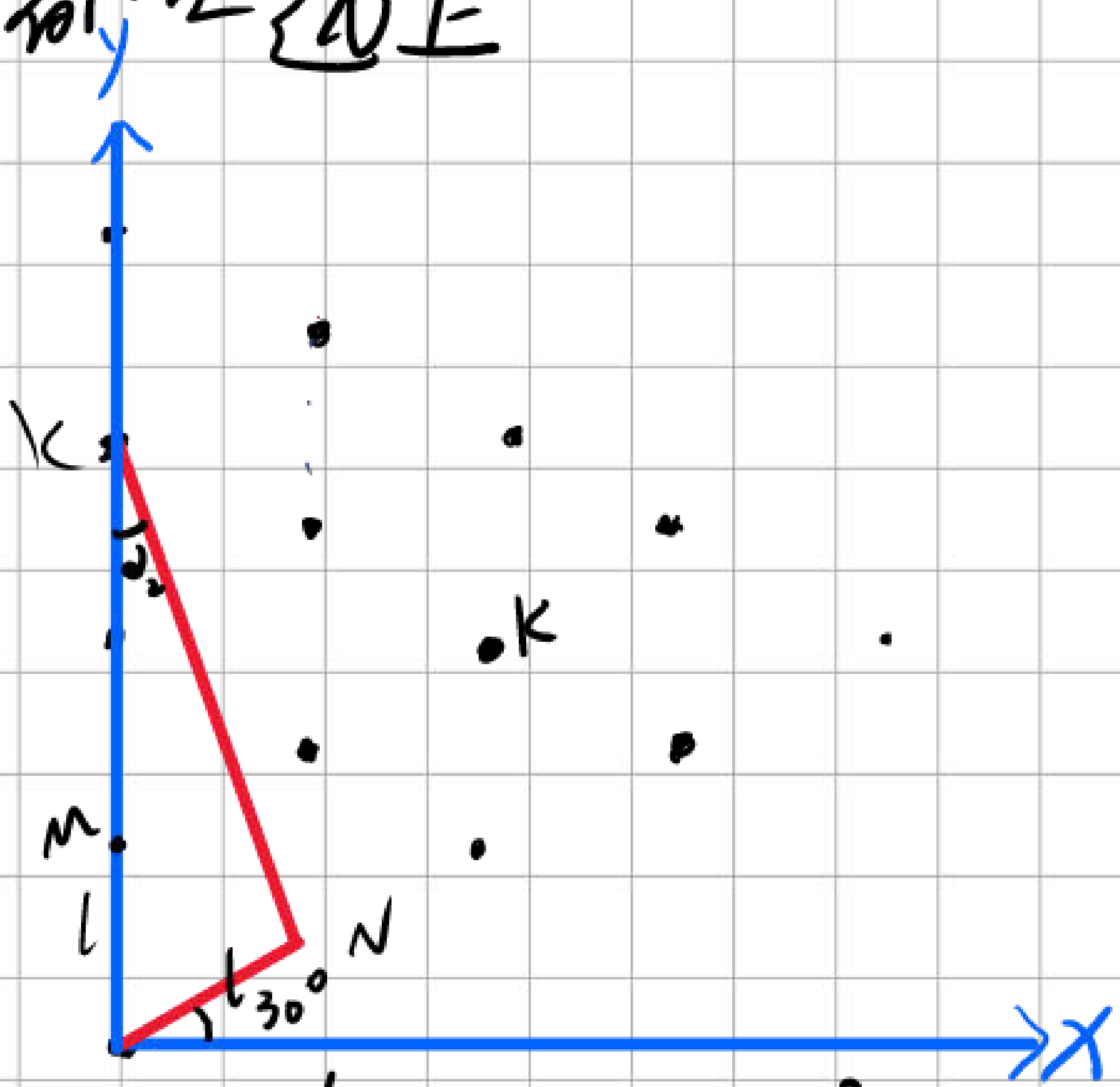
② 14飞(保持$\angle 1+\angle 2=60^\circ$)，到$\angle 3+\angle 4=120^\circ$

③ 10飞(保持$\angle 1+\angle 2=60^\circ$)，到$\angle 5+\angle 6=120^\circ$

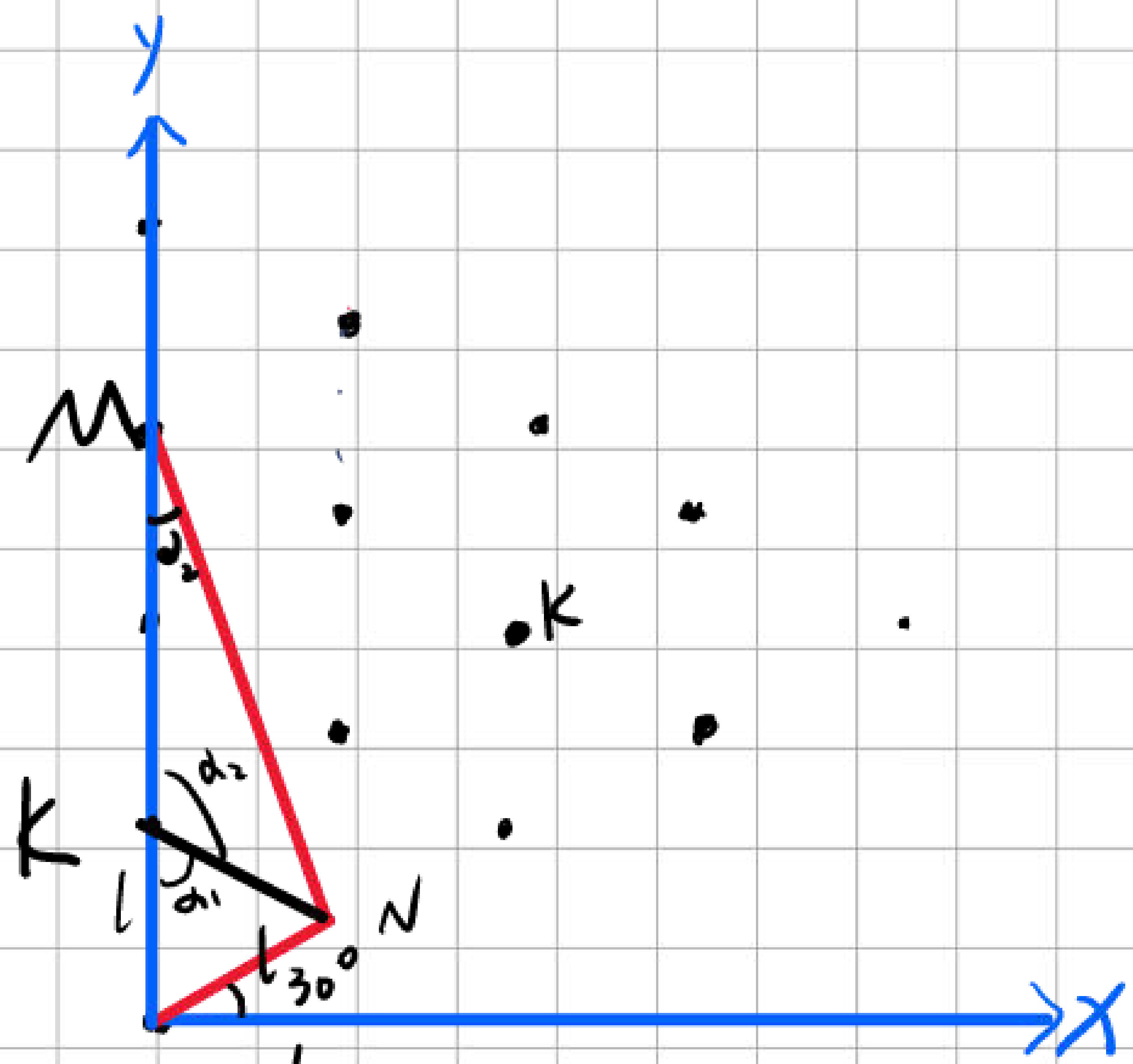
则 15、14、9、10 四点之间在2等边上(已经得知)

MN都在边上

共线

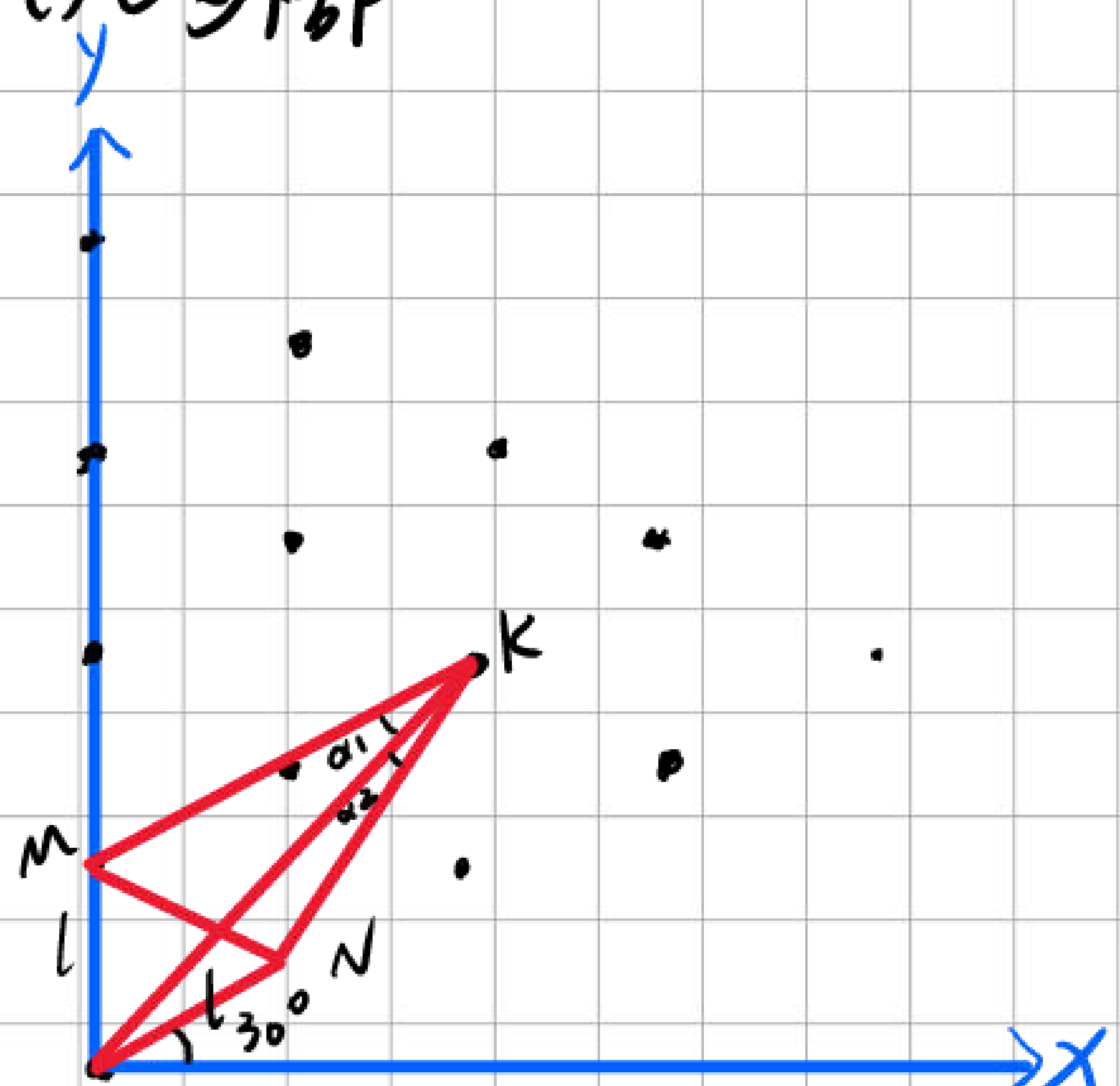


$OK=\dfrac{l}{\sin\alpha_2}\cdot\sin(\alpha_2+60^\circ)$



$OK=\dfrac{l}{\sin\alpha_1}\cdot\sin(\alpha_1+60^\circ)$

OMN外部



$$\begin{cases}\dfrac{\sin\alpha_1}{OM}=\dfrac{\sin OMK}{OK}\\[2mm]\dfrac{\sin\alpha_2}{ON}=\dfrac{\sin ONK}{OK}\end{cases}\Rightarrow\frac{\sin\angle OMK}{\sin\angle ONK}=\frac{\sin\alpha_1\cdot ON}{\sin\alpha_2\cdot OM}$$

$$(\alpha_1+\alpha_2+60^\circ)+\angle OMK+\angle ONK=2\pi$$

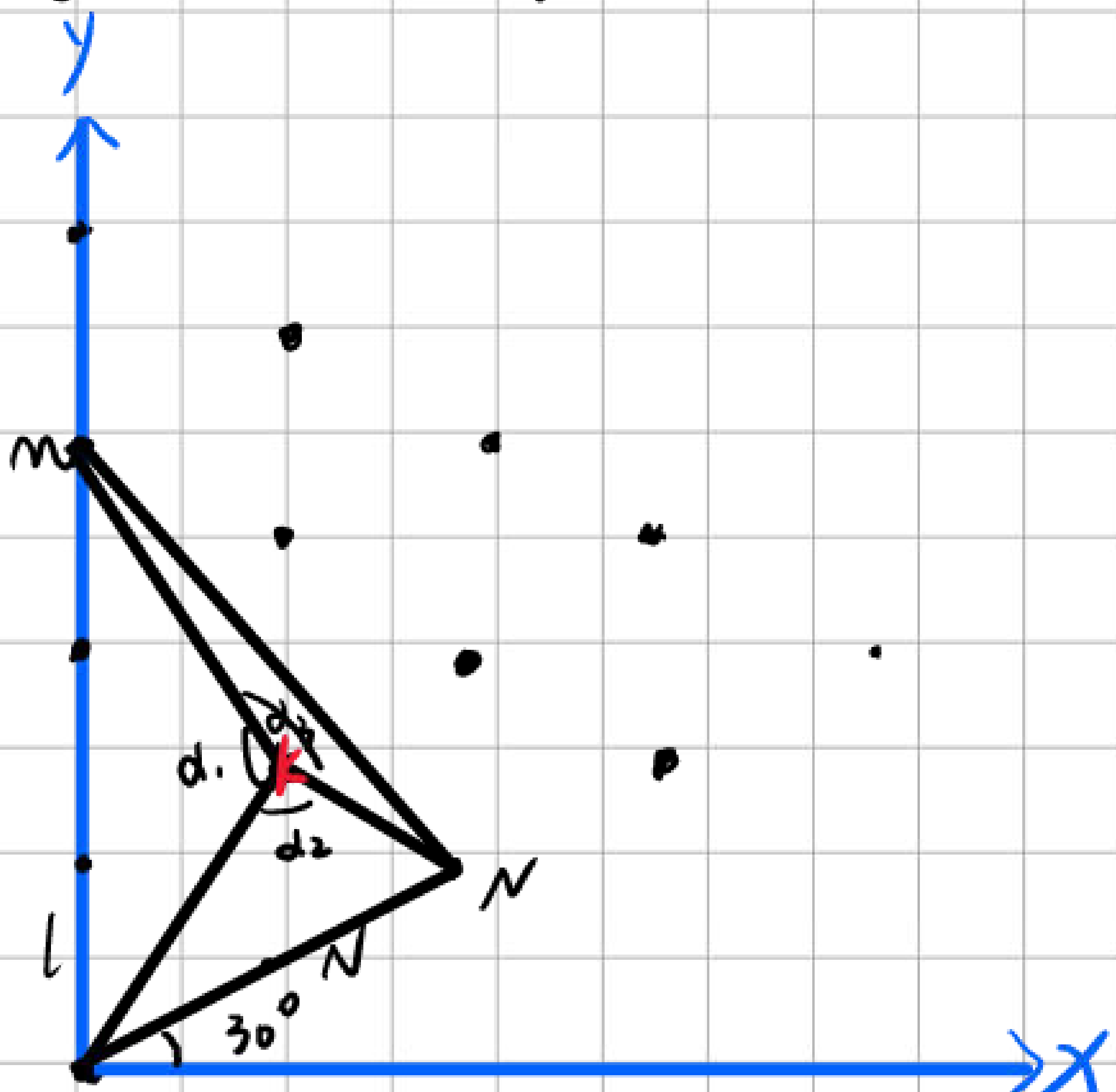
$$\angle OMK=2\pi-[(\alpha_1+\alpha_2+60^\circ)+\angle ONK]$$

$$\sin\angle OMK=-\sin[(\alpha_1+\alpha_2+60^\circ)+\angle ONK]$$

$$\frac{ON\cdot\sin\alpha_1}{OM\cdot\sin\alpha_2}\sin\angle ONK=-\sin(\alpha_1+\alpha_2+60^\circ)\cos\angle ONK-\cos(\alpha_1+\alpha_2+60^\circ)\sin\angle ONK$$

$$\tan\angle ONK=-\frac{\sin(\alpha_1+\alpha_2+\angle MON)}{\frac{ON\cdot\sin\alpha_1}{OM\cdot\sin\alpha_2}+\cos(\alpha_1+\alpha_2+\angle MON)}\qquad OK=\sin\angle ONK\cdot\frac{ON}{\sin\alpha_2}$$

OMN 内部



$$\begin{cases}\dfrac{\sin\alpha_1}{OM}=\dfrac{\sin\angle OMK}{OK}\\[2mm] \dfrac{\sin\alpha_2}{ON}=\dfrac{\sin\angle ONK}{OK}\end{cases}\Rightarrow \frac{\sin\angle OMK}{\sin\angle ONK}=\frac{ON\cdot\sin\alpha_1}{OM\cdot\sin\alpha_2}$$

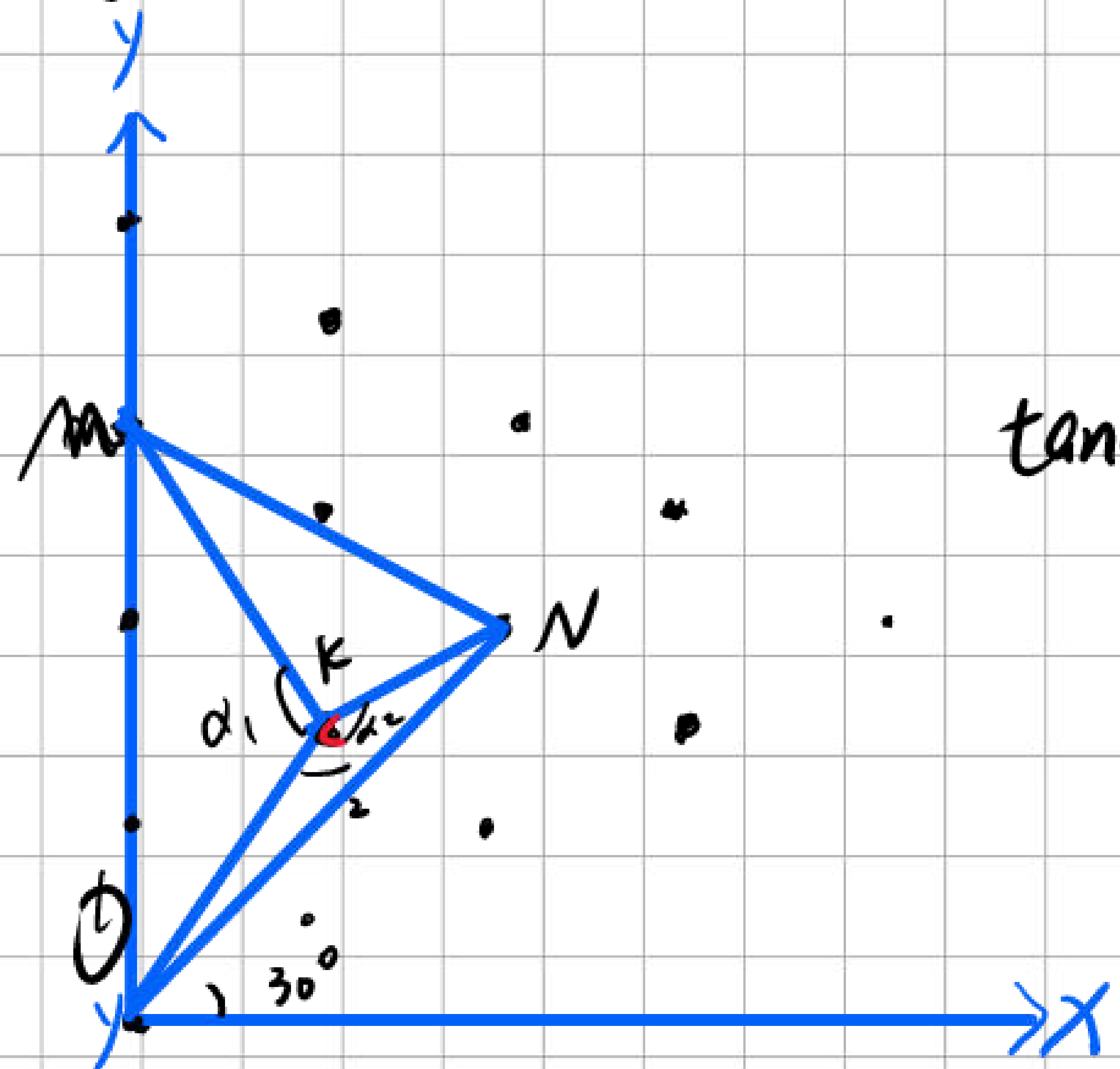
$$\alpha_1+\alpha_2+60^\circ+\angle OMK+\angle ONK=2\pi$$

$$\angle OMK=2\pi-[(\alpha_1+\alpha_2+60^\circ)+\angle ONK]$$

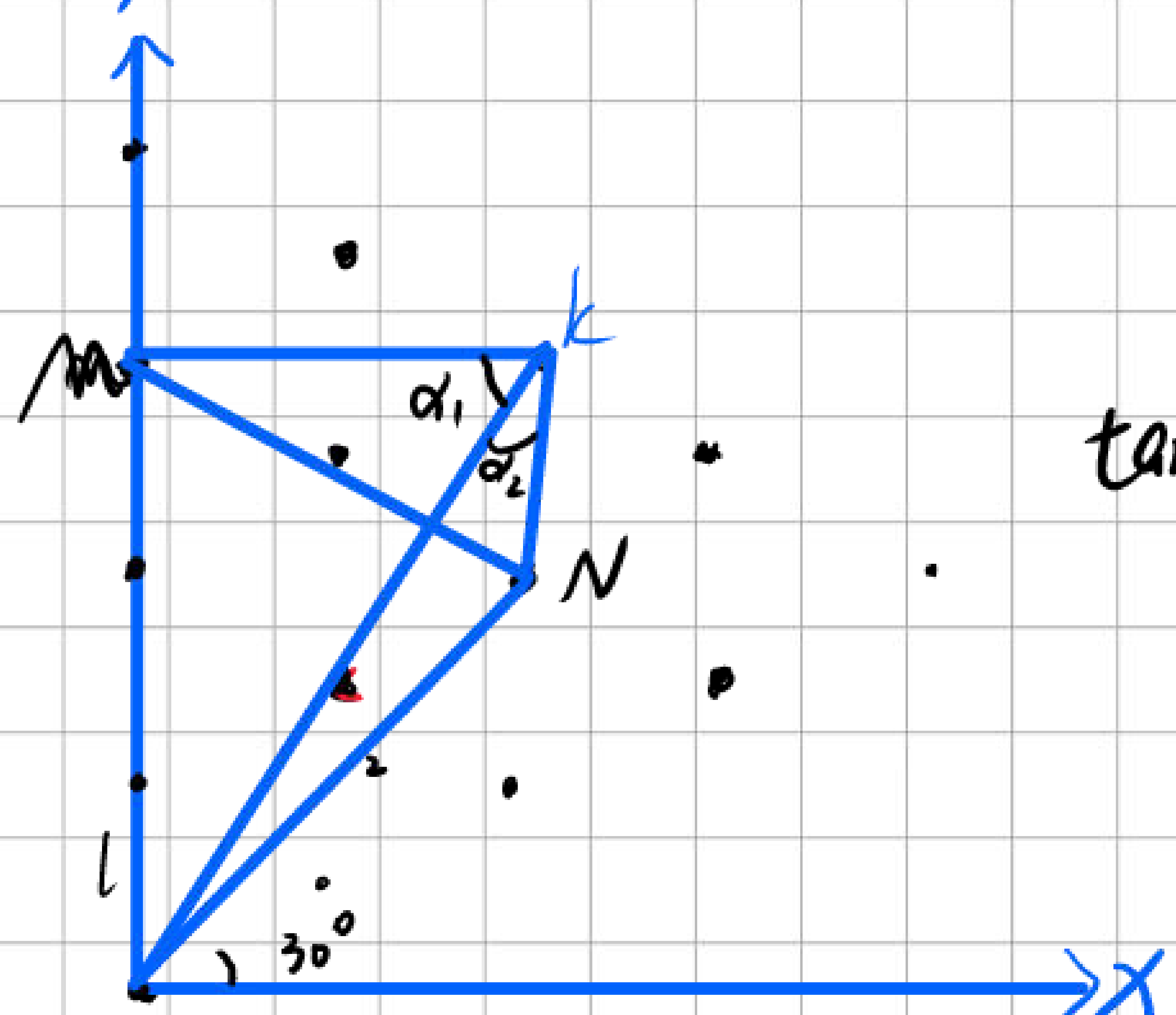
$$\frac{ON\cdot\sin\alpha_1}{OM\cdot\sin\alpha_2}\sin\angle ONK=-\sin(\alpha_1+\alpha_2+60^\circ)\cos\angle ONK-\cos(\alpha_1+\alpha_2+60^\circ)\sin\angle ONK$$

$$\tan\angle ONK=-\frac{\sin(\alpha_1+\alpha_2+\angle MON)}{\frac{ON\cdot\sin\alpha_1}{OM\cdot\sin\alpha_2}+\cos(\alpha_1+\alpha_2+\angle MON)}\qquad OK=\sin\angle ONK\cdot\frac{ON}{\sin\alpha_2}$$

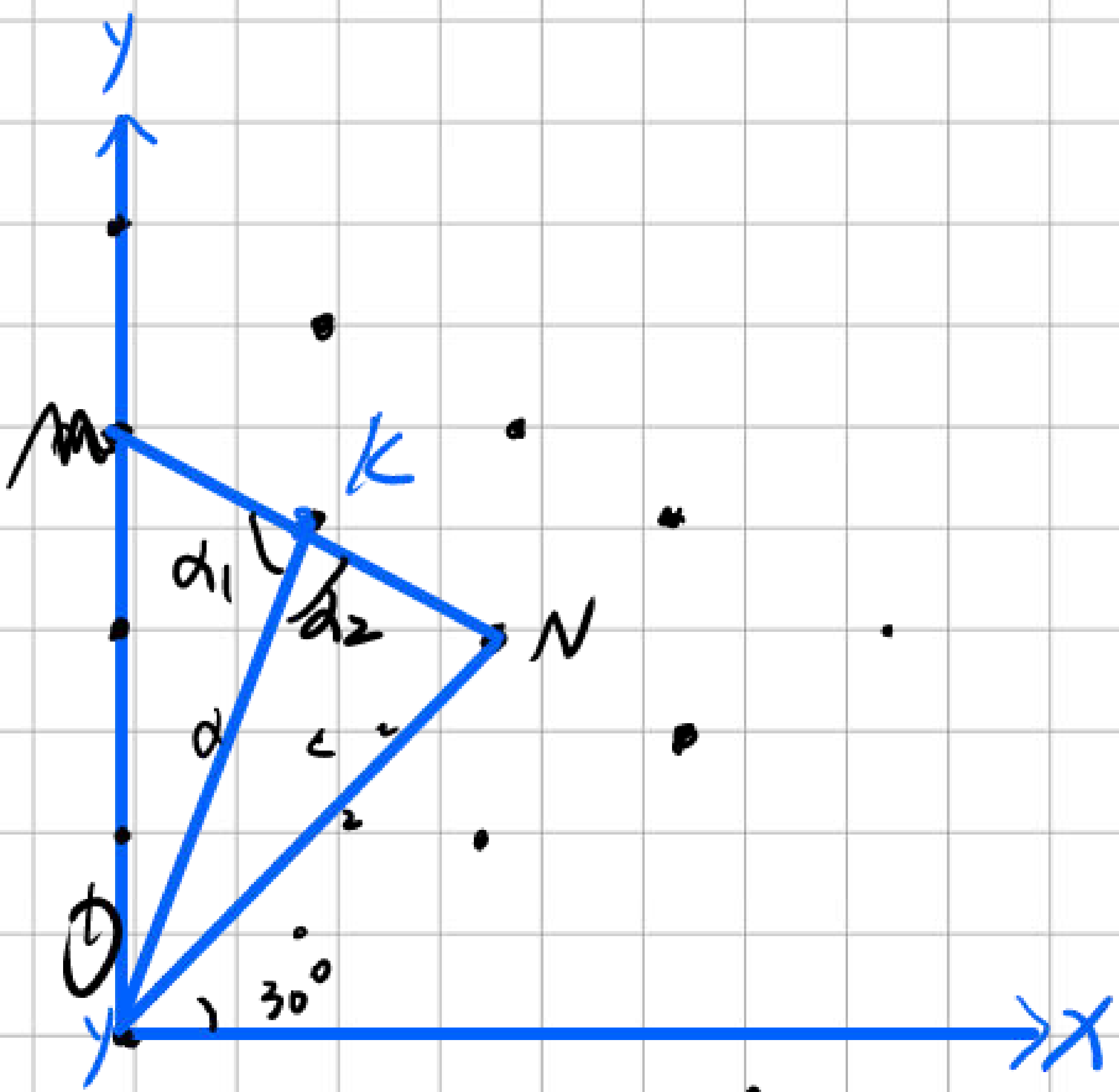
一个在轴上，一个不在轴上



$$\tan\angle ONK=-\frac{\sin(\alpha_1+\alpha_2+\angle MON}{\frac{ON\cdot\sin\alpha_1}{OM\cdot\sin\alpha_2}+\cos(\alpha_1+\alpha_2\angle MON)}\qquad OK=\sin\angle ONK\cdot\frac{ON}{\sin\alpha_2}$$



$$\tan\angle ONK=-\frac{\sin(\alpha_1+\alpha_2+\angle MON)}{\frac{ON\cdot\sin\alpha_1}{OM\cdot\sin\alpha_2}+\cos(\alpha_1+\alpha_2+\angle MON)}\qquad OK=\sin\angle ONK\cdot\frac{ON}{\sin\alpha_2}$$



$$\begin{cases}\dfrac{\sin\alpha_1}{OM}=\dfrac{\sin\angle OMK}{OK}\\[2ex] \dfrac{\sin\alpha_2}{ON}=\dfrac{\sin\angle ONK}{OK}\end{cases}\Rightarrow \frac{\sin\angle OMK}{\sin\angle ONK}=\frac{ON\sin\alpha_1}{OM\sin\alpha_2}=\frac{ON}{OM}$$

$$\angle OMK+\angle ONK+\angle MON=\pi$$

$$\sin\angle OMK=\sin\angle ONK\cos\angle MON+\cos\angle ONK\sin\angle MON$$

$$\frac{ON}{OM}\tan\angle ONK=\tan\angle ONK\cos\angle MON+\sin\angle MON$$

$$\tan\angle ONK=\frac{\sin\angle MON}{\frac{ON}{OM}-\cos\angle MON}\qquad OK=\frac{ON}{\sin\alpha_2}\cdot\sin ONK$$

2个点在三角形