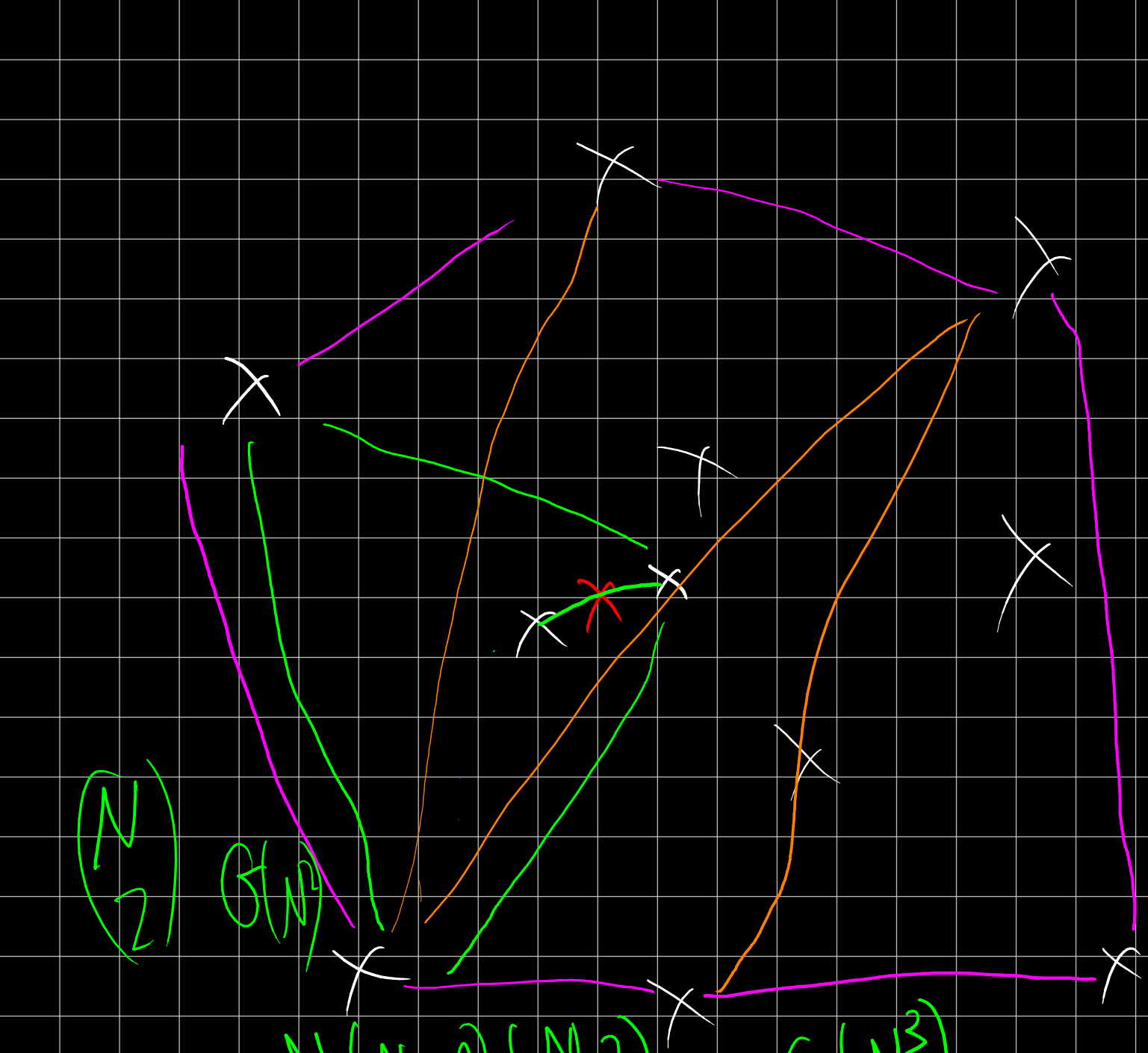
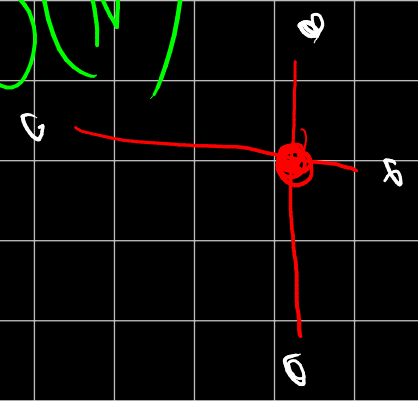
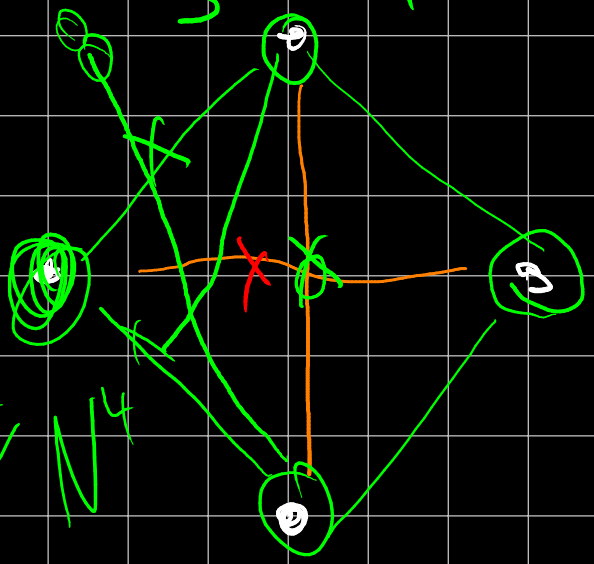


$\binom{N}{2} \in O(N^2)$

$\binom{N}{3} = \frac{N(N-1)(N-2)}{3 \cdot 2 \cdot 1} \in O(N^3)$

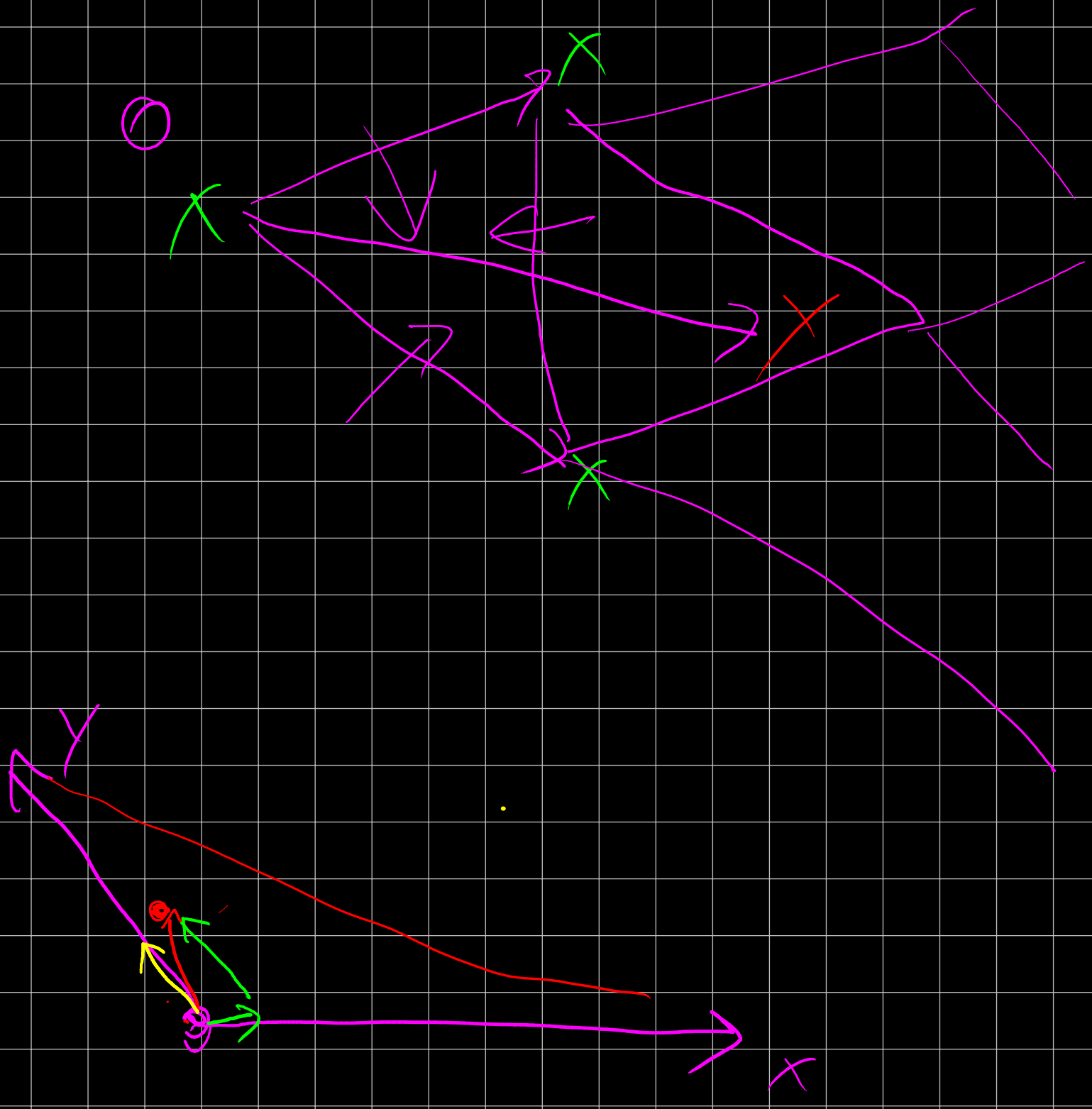




$\binom{N}{4} \in N^4$

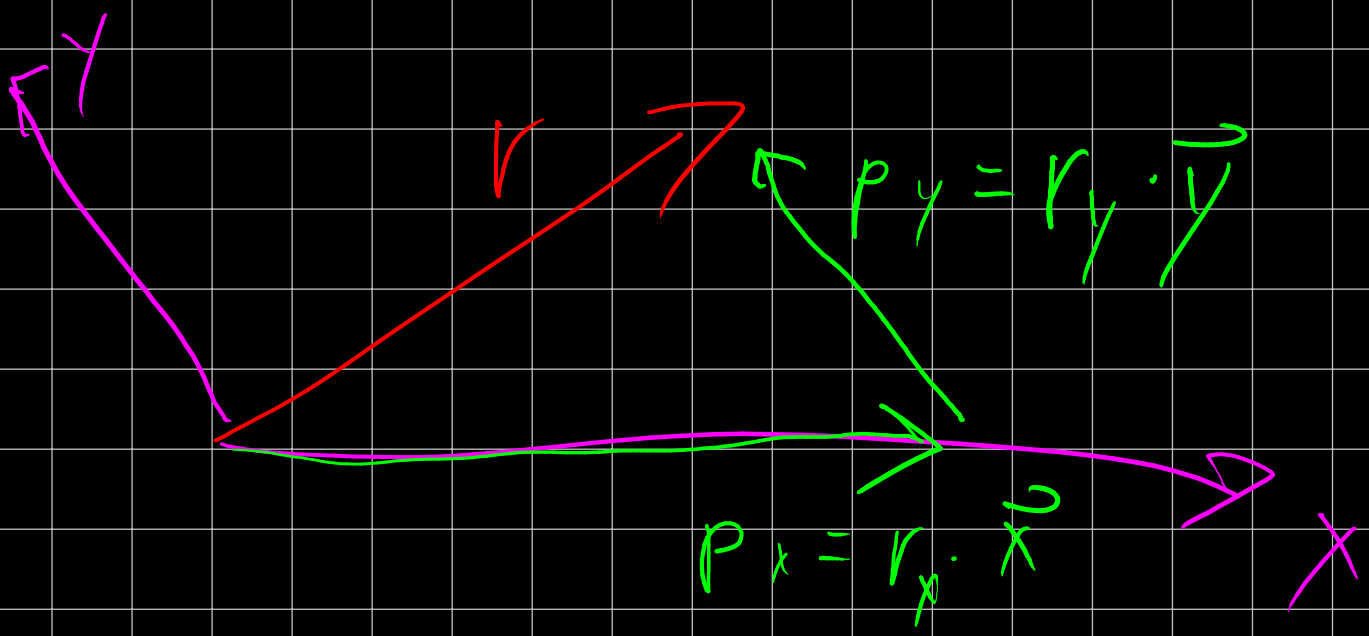
$N^3 \rightarrow 200k$

$\searrow 27M$



$$\vec{r} \cdot \vec{y} = \cos(\alpha) \cdot r \, y$$

$$\vec{p}_y = \cos(\alpha) \cdot r \cdot \frac{\vec{y}}{y} = \frac{\vec{r} \cdot \vec{y}}{y} \cdot \frac{\vec{y}}{y}$$



$$\vec{r} = \vec{p}_y + \vec{p}_x$$

$$\vec{r}\vec{x} = \vec{p}_y \cdot \vec{x} + p_x \cdot x$$

$$= r_y \vec{y} \cdot \vec{x} + r_x \cdot x^2$$

$$\vec{r}\vec{y} = r_y \cdot y^2 + r_x \cdot \vec{x} \cdot \vec{y}$$

8 5 1 × 2

7 0 3 4 6