L: Linguistic Labyrinth

Problem author: Jeroen Op de Beek

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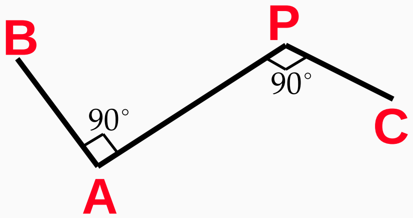

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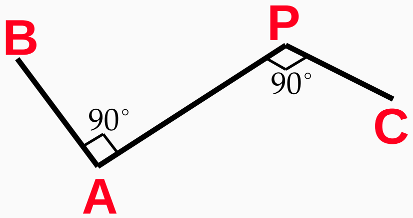

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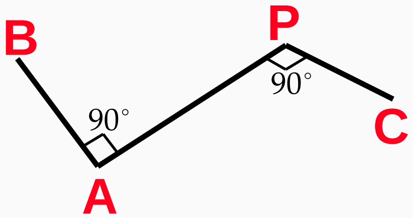

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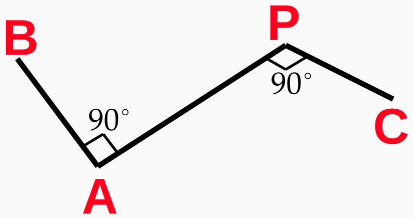

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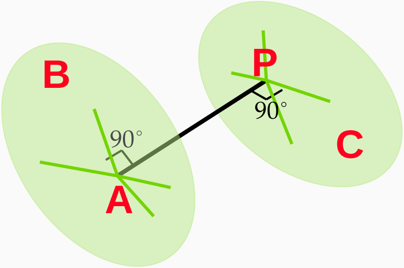
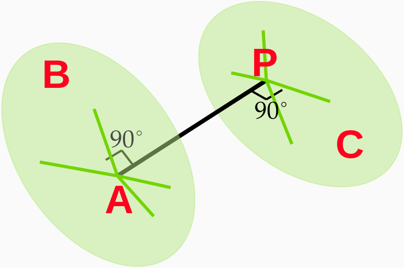
Better solution: Fix A and P. Now the choice of B and C are independent.



Better solution: Loop over all AP pairs, count the number of possible B's and C's, and multiply these counts.



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Running time: Counting B's and C's takes $\mathcal{O}(n^3)$ per AP pair, so the runtime is $\mathcal{O}(n^9)$ in total, still too slow.

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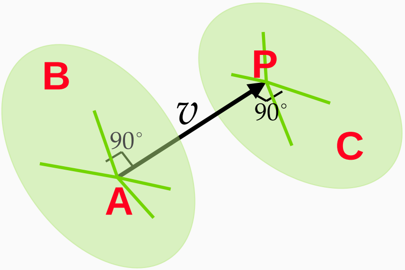
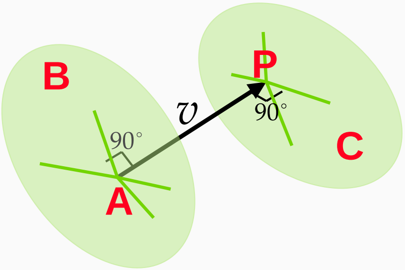


Best solution: Let v be the vector $P - A$. Then a point B is good if and only if $v \cdot B = v \cdot A$, and likewise C is good if and only if $v \cdot C = v \cdot P$.



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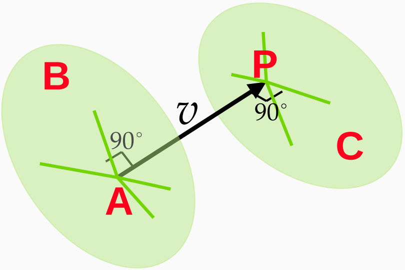
Best solution: For each possible vector v, precompute the number of B's and C's that have a certain inner product. These counts can be stored in an array of size $\mathcal{O}(n^5)$.



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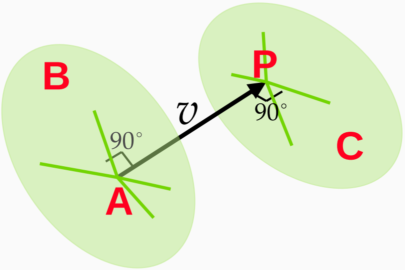

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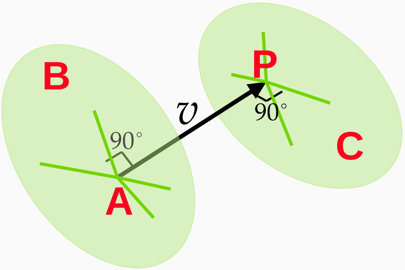

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Statistics: 32 submissions, 0 accepted, 21 unknown