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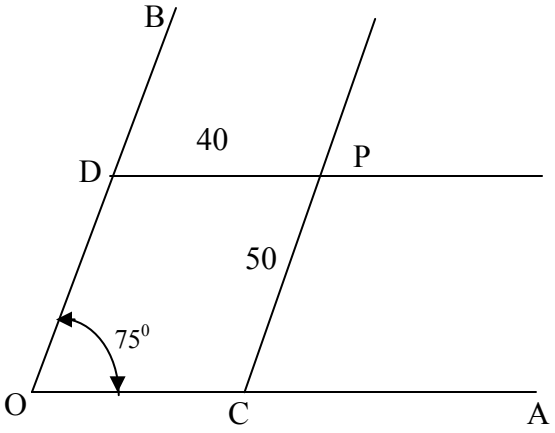
Q) A point P is 40 mm and 50 mm away from two straight lines OA and OB which are at 75^0 to each other. Draw a rectangular hyperbola through P, showing at least 8 points.

Ans)

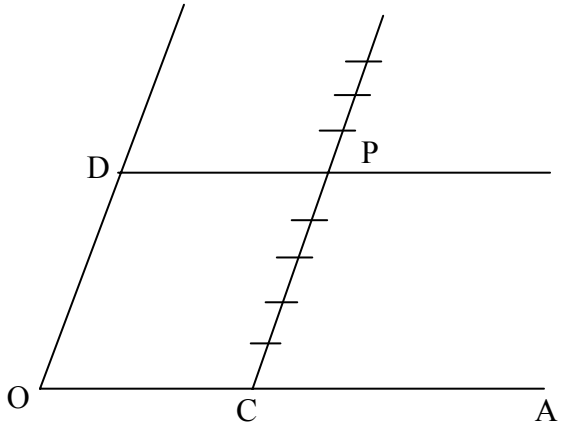
Logic:

Since OA and OB are at 75^0 with each other, they can be treated as coordinate axes at angle of 75^0 & hence P (40, 50) can be marked. Then select 4 points above and 4 points below P and through these points, we can get points of hyperbola.

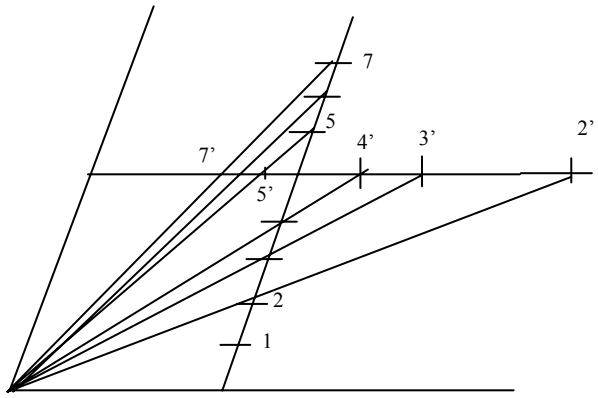
1) Draw OA, OB $\angle 75^0$ to each other, of any length.
Mark P at (40, 50) from OA, OB.



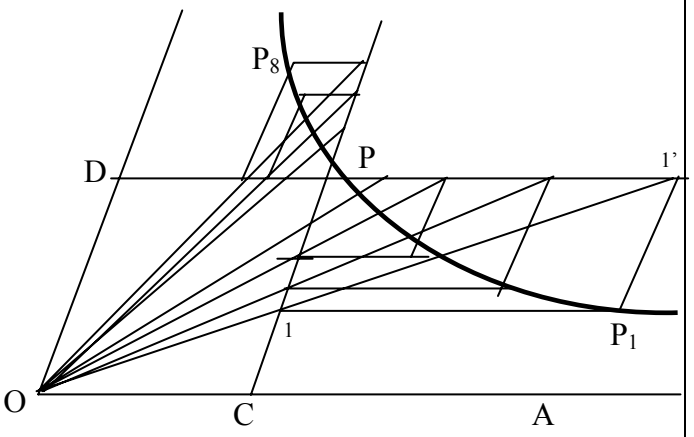
2) Divide CP into 5 equal parts up to P and mark 1,2,3,4.After P also mark points 5,6,7 etc at 10 mm each on CP..



3) Join O1, O2, O3, etc, to cut DP at 1', 2', 3' ... up to 8';



4) From 1 draw line ll^{el} to OA and from 1' draw line ll^{el} to OB to get P1. Similarly get the other points of the hyperbola.



On smoothly joining the points, we get the required rectangular hyperbola.