

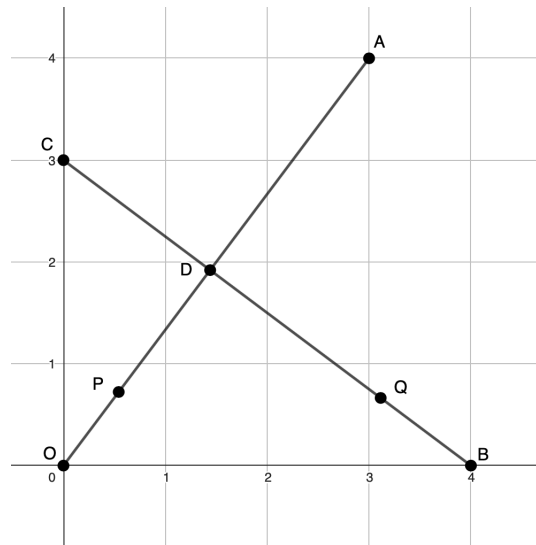
As shown in the figure below, Point P moves at a constant speed from Point $O(0,0)$ along OA towards $A(3,4)$. Point Q moves at a constant speed from Point $B(4,0)$ along BC towards $C(0,3)$. Given this information, answer the questions below.¹

(1): Find the coordinates of Point D , the intersection of OA and BC .

(2): It takes 5 seconds for P to arrive at A . At what time t does P cross D ?

(3): It takes 5 seconds for Q to arrive at C . If P and Q leave their respective starting positions at the same time, find the value of t where segment PQ is parallel to the y -axis.

Hint: When P and Q have the same x -coordinate, they form a line parallel to the y -axis.



¹Tokyo Gakugei University High School