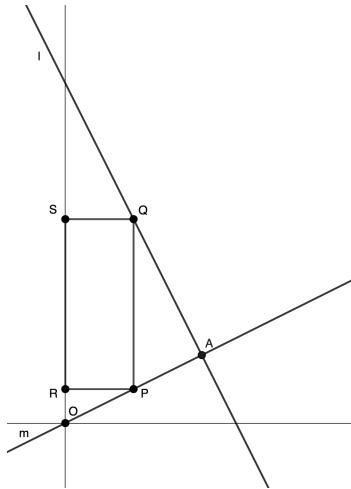


Two lines, $l : y = -2x + 10$, $m : y = \frac{1}{2}x$ intersect at point A . As shown in the figure below, P lies on segment OA , and a line parallel to the y -axis is drawn until it intersects with l , which is marked as Q . Lines parallel to the x -axis are drawn from P and Q , and their intersections with the y -axis are marked as R and S , respectively. Given this information, answer the questions below.¹

- (1): Find the coordinates of A .
- (2): Let t be the x -coordinate of P . Find the length of PQ in terms of t .
- (3): Find the coordinates of Q such that $PQRS$ is a square.



¹Toho University High School, Chiba