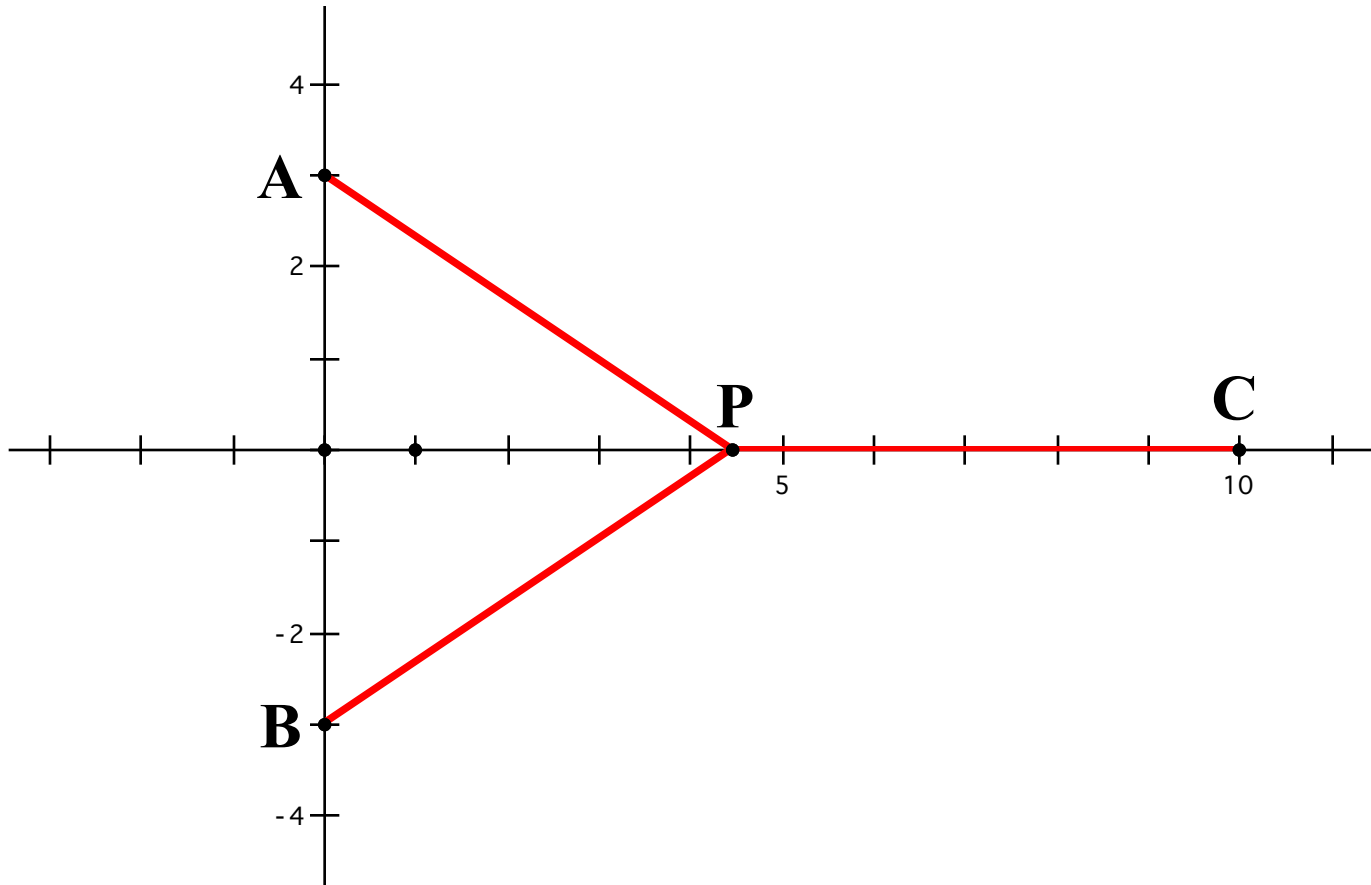


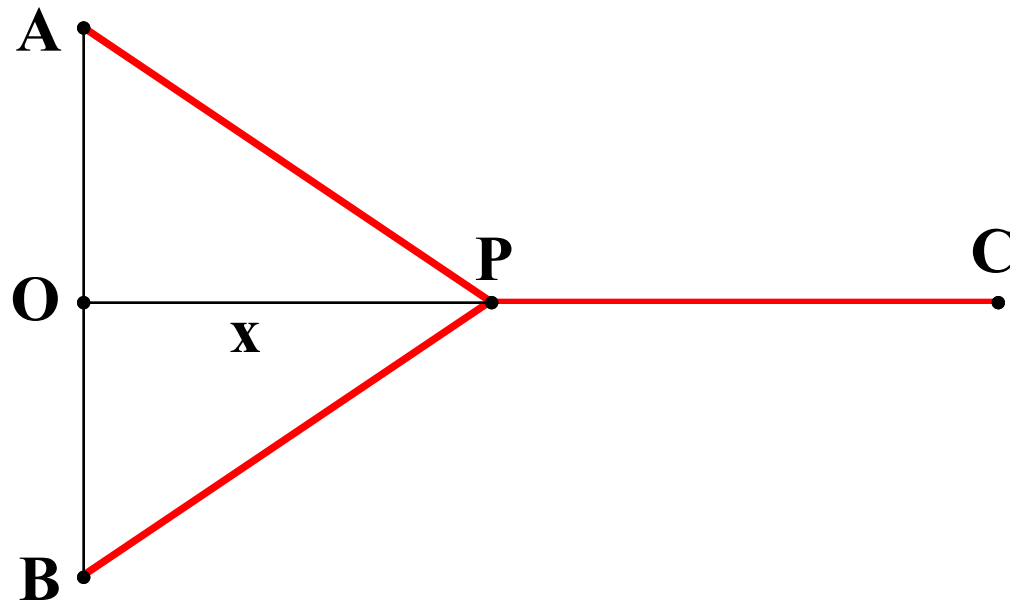
The Warehouse Problem

Three stores are located at points $A(0, 3)$, $B(0, -3)$ and $C(10, 0)$. A warehouse that will service these stores is to be located at a point P for which the sum of the three distances PA , PB and PC is as small as possible. Putting the warehouse at P ensures that the delivery trucks travel as little as possible which helps to minimize the cost of doing business. It is assumed that it will be possible to drive directly from each store to the warehouse wherever it is located and that each store sells the same quantity of each product that the stores carry.

Let A, B and C be the three points $(0, 3)$, $(0, -3)$ and $(10, 0)$. Find the point P for which $PA + PB + PC$ is the smallest.



Let x represent the length of OP and let y represent $PA + PB + PC$



$$y = ?$$