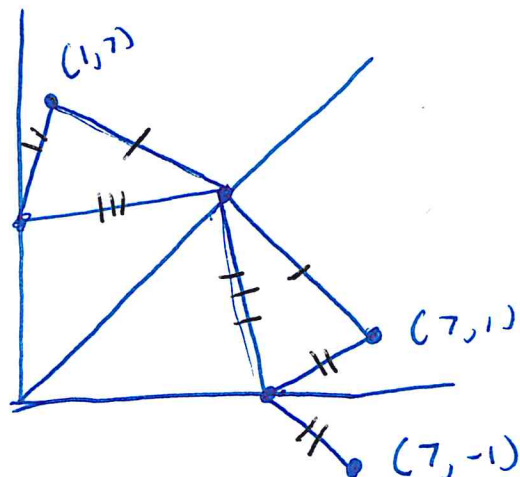
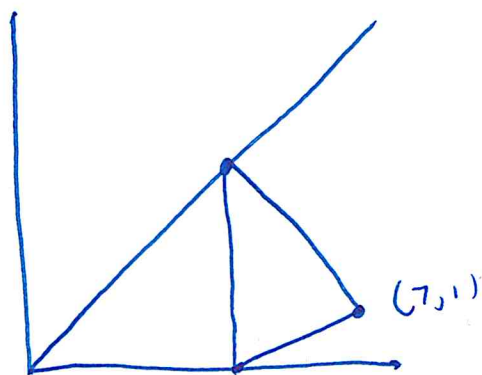


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notice the perimeter of the triangle is the same as minimizing the distance from  $(1, 7)$  to  $(7, -1)$  by reflecting the triangle over  $y=x$  and the  $x$ -axis.

$$d = \sqrt{(1-7)^2 + (7-(-1))^2} = \sqrt{36 + 64} = \sqrt{100} = \boxed{10}$$