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Do dogs play with rulers and compasses?

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Consider the following problem: a dog runs at the speed of 1 and swims at the speed of $s < 1$. A dog is at a point A of a shoreline and tries to get to a ball which is in the water at point B . He wants to get there as soon as possible. What path should the dog take? This is a very classical problem of optimization that can be found, with different contexts, in virtually every elementary calculus book. In fact, this is related to Snell's law of refraction. The author gives a ruler and compass construction of this and some other close related settings. This is a nice paper to be read by advanced high school students. *Antonio M. Oller (Zaragoza)*

Classification: G40 G80 I40 N60

Keywords: optimization; ruler and compass construction; rate of speeds

<http://forumgeom.fau.edu/FG2015volume15/FG201514index.html>