

Excellent! You both said what you were trying to accomplish and how what you did accomplished it.

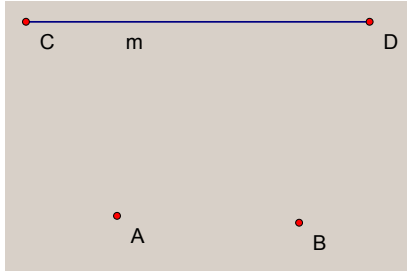
MTED 2690
Dr. Thompson

10/10

Explanation for Construction #2

Given: Point A, point B and a length m.

Assignment: Construct the locus of points X such that $m = \text{Dist}(X,A) - \text{Dist}(X,B)$.

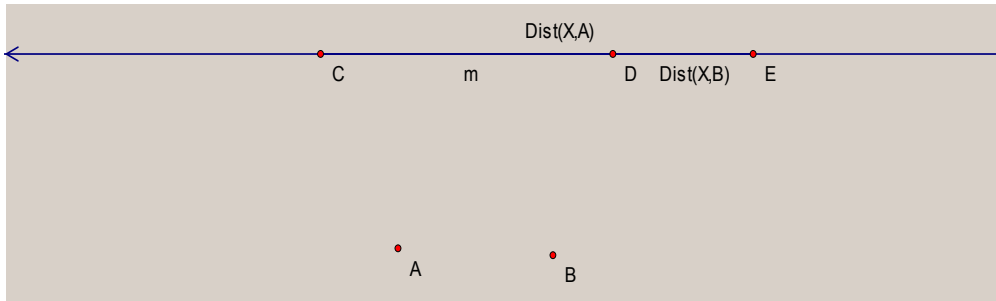


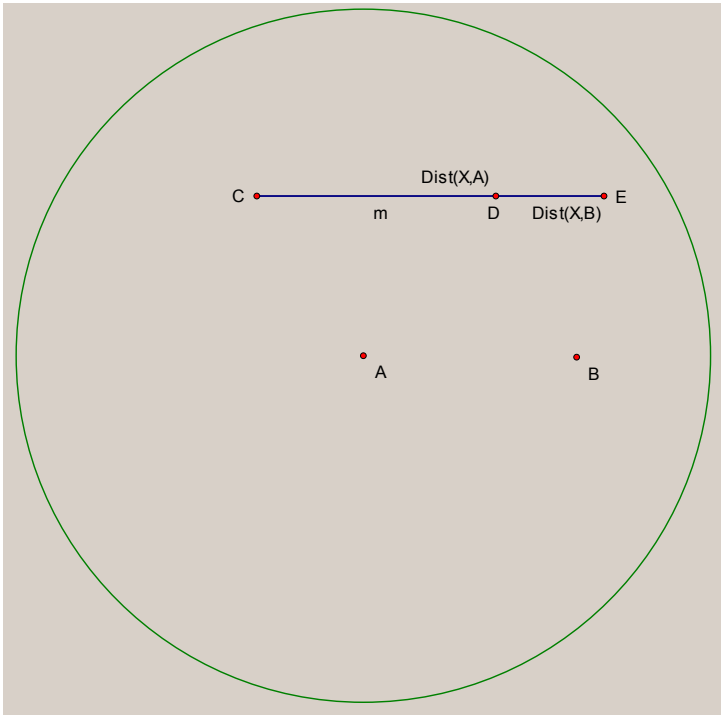
We begin with the given, points A and B and a length m. (left)

We have to define m so that it exists as the difference of $\text{Dist}(X,B)$ and $\text{Dist}(X,A)$. We extend segment CD to a line in order to place a point, E, on that line, outside of segment CD, and choose segment CE to be $\text{Dist}(X,A)$ and segment DE to be $\text{Dist}(X,B)$. (below)

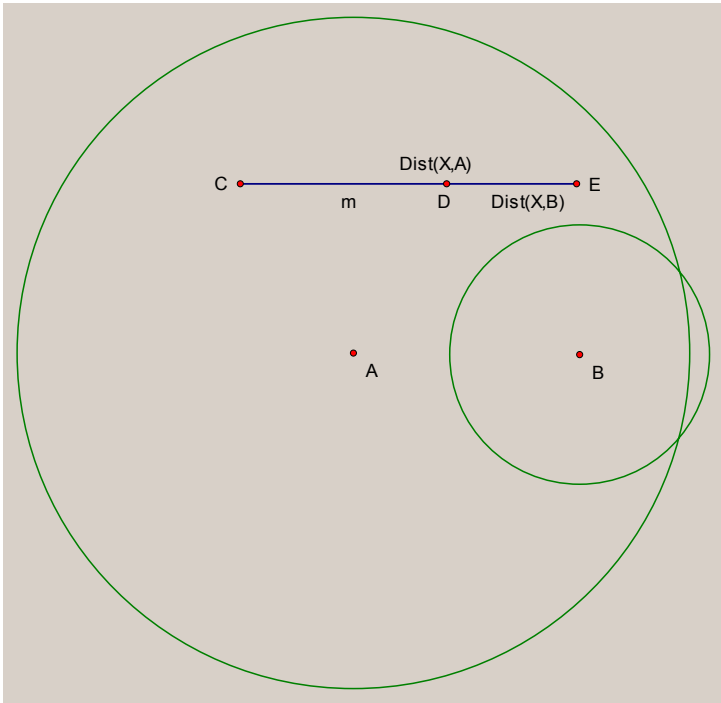
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Next we hide the line formed by CD (simply to make it easier to distinguish what we're talking about). We choose point A and segment CE to form a circle by center and radius, giving all distances from point A of length (X,A). (left)



Next we choose segment DE and point B to form a circle by center and radius, giving us all points from B of length (X,B). (left)

The places where the two circles intersect now give us points X so that their distances from A and B are such that $\text{Dist}(X,A) - \text{Dist}(X,B)$ is m . So, we label these points F and G, and we trace them as we drag point E. This provides us with the locus of points X such that $m = \text{Dist}(X,A) - \text{Dist}(X,B)$. (below)

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