

Construction of a Line Parallel to Line ℓ Through a Point Not on Line ℓ

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Theorem 11.6. Given a line ℓ and a point A not lying on ℓ . Draw circle A through line ℓ . Draw circle B through point A. Label the intersection of line ℓ and circle B point C. Draw circle C through point B. Draw line through AD. Which means line AD is parallel to line ℓ .

Proof. AB is congruent to AD because they are both the radius of circle A. DC is congruent to BC because they are both the radius of circle C. AB is congruent to BC because of the radius of circle B. This means that figure ABCD is a rhombus. Conjecture 1.6 told us that all rhombus's are parallelograms. By construction we know that line segment BC has to lie on line ℓ . Because ABCD is a rhombus, then AD is parallel to BC. Since line segment BC lies on line ℓ , then AD is parallel to line ℓ .

Refereed by: Grace Freking

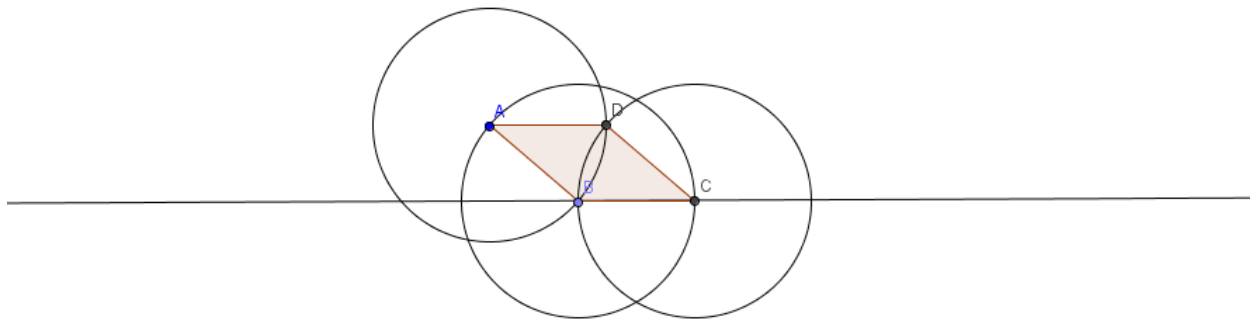


Figure 1: The parallelogram ABCD created by this construction.

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