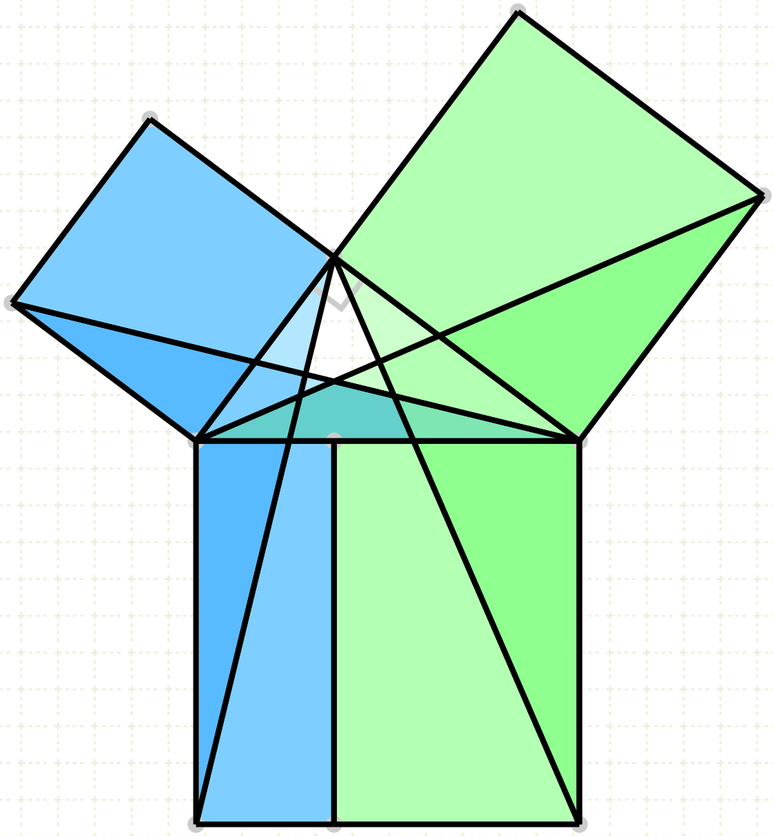
Euclid's Elements

Book I



If Euclid did not kindle your youthful enthusiasm, you were not born to be a scientific thinker.

Albert Einstein

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38 Triangles, equal base-height have equal area

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Proposition 3 of Book I

To cut off from the greater of two given unequal straight lines a straight line equal to the less.

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In other words

Start with line AB and line CD, where CD is larger than AB

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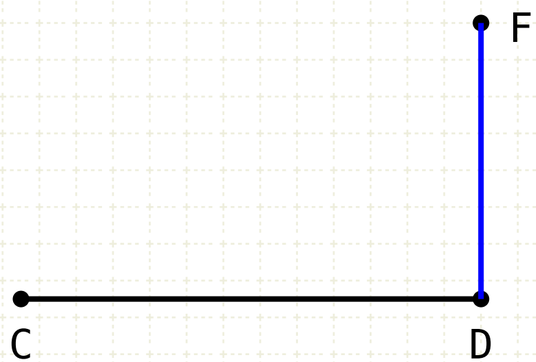

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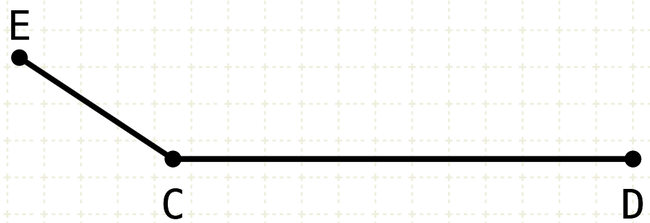

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Start with line AB and line CD

Construct line segment CE equal to AB (I·2)

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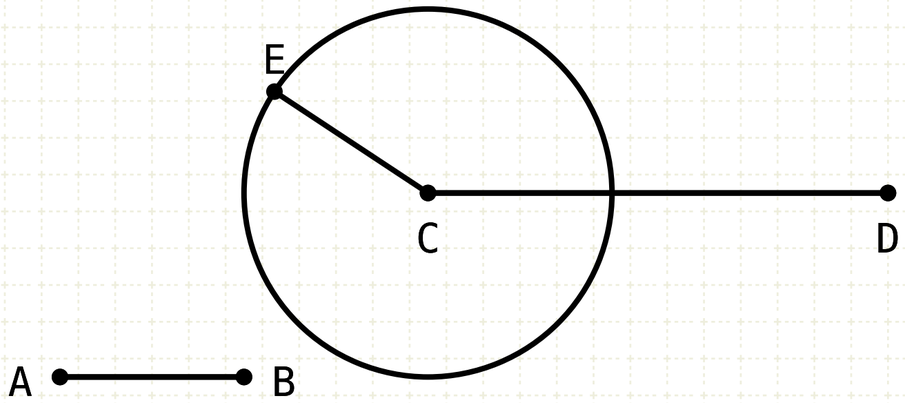

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Construct line segment CE equal to AB (I·2)

Draw a circle with C as the center and CE as the radius

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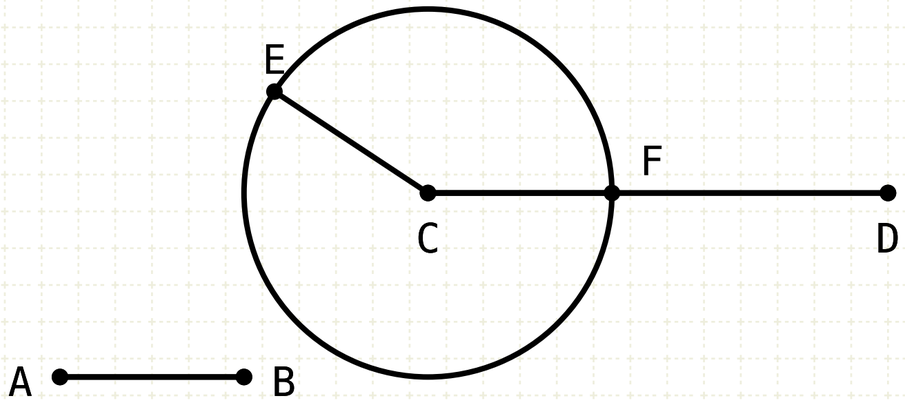

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Construction:

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Construct line segment CE equal to AB (I·2)

Draw a circle with C as the center and CE as the radius

Define the intersection of the circle and CD as F

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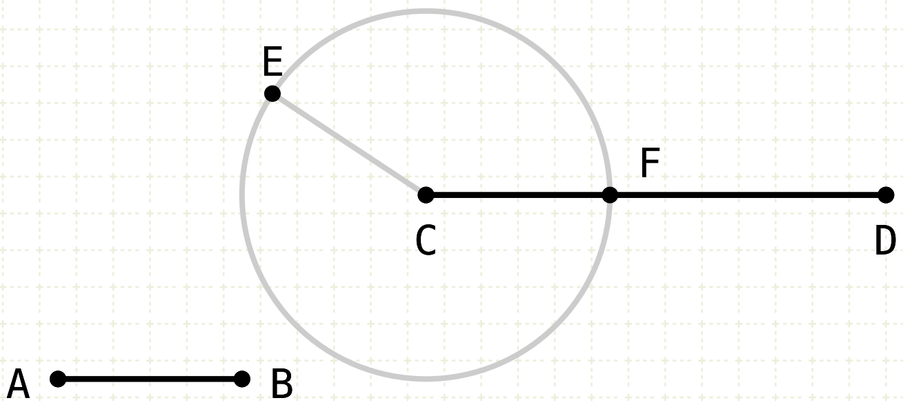

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Line DF is the difference between line CD and line AB

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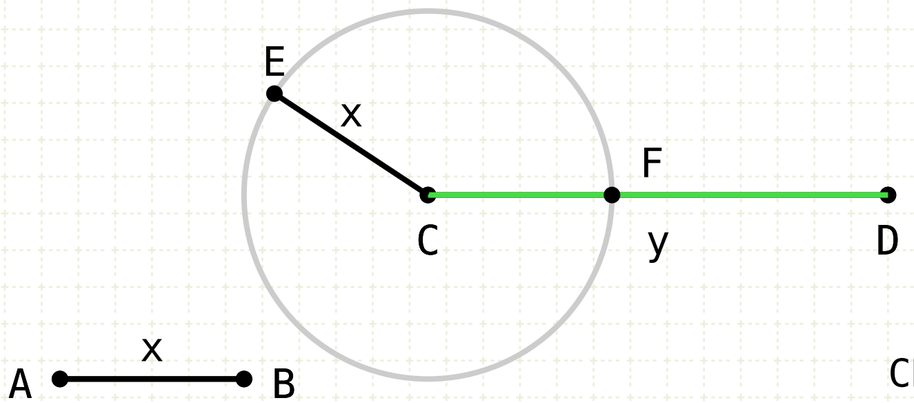

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AB = CE = x

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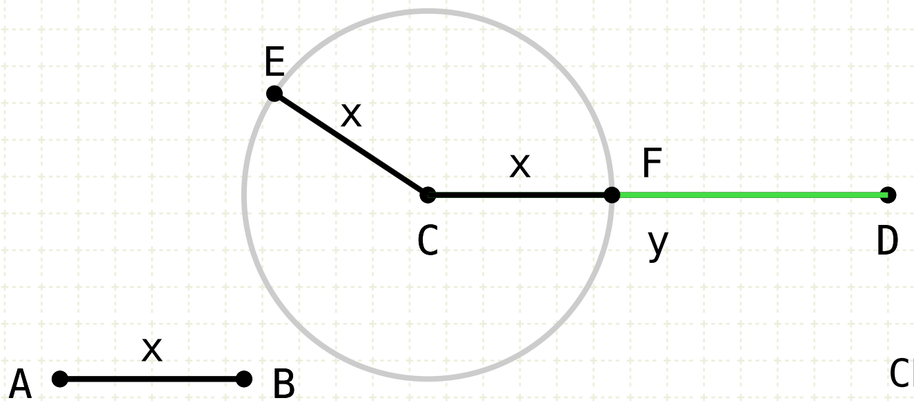

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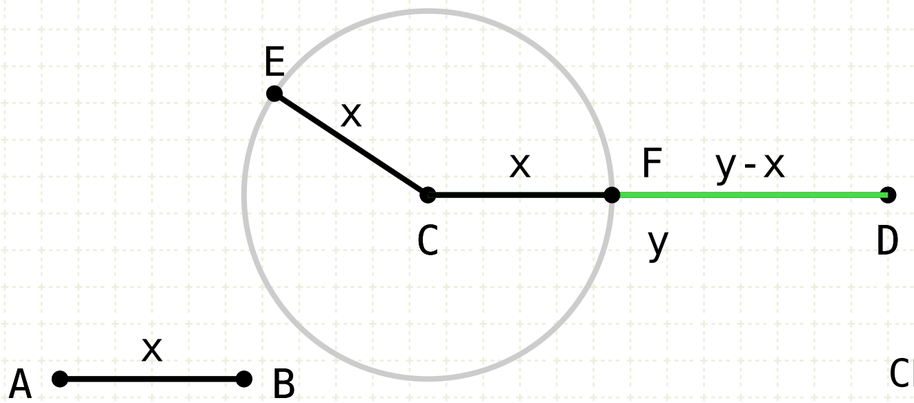

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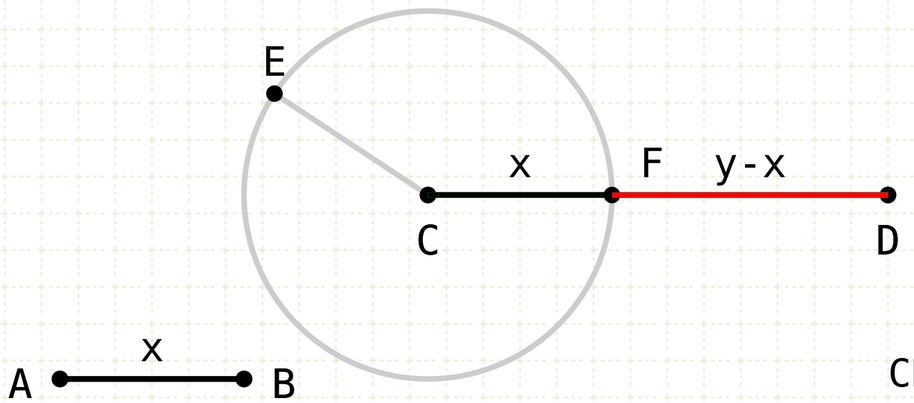

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