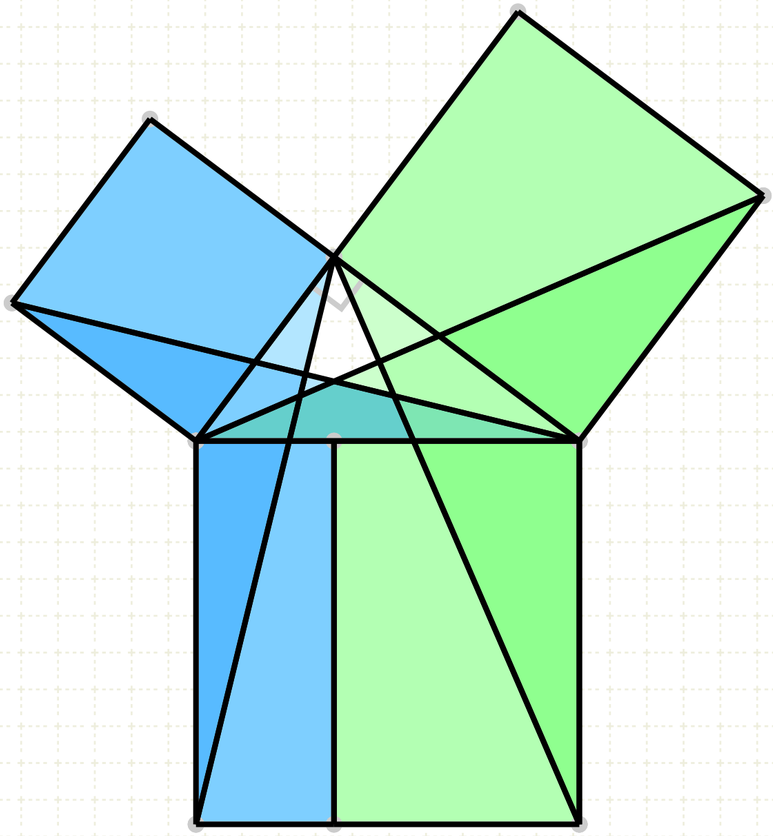
Euclid's Elements

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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Proposition 1 of Book I

To construct an equilateral triangle on a given finite straight line.

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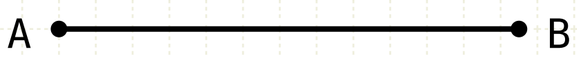
Construction:

Start with line segment AB



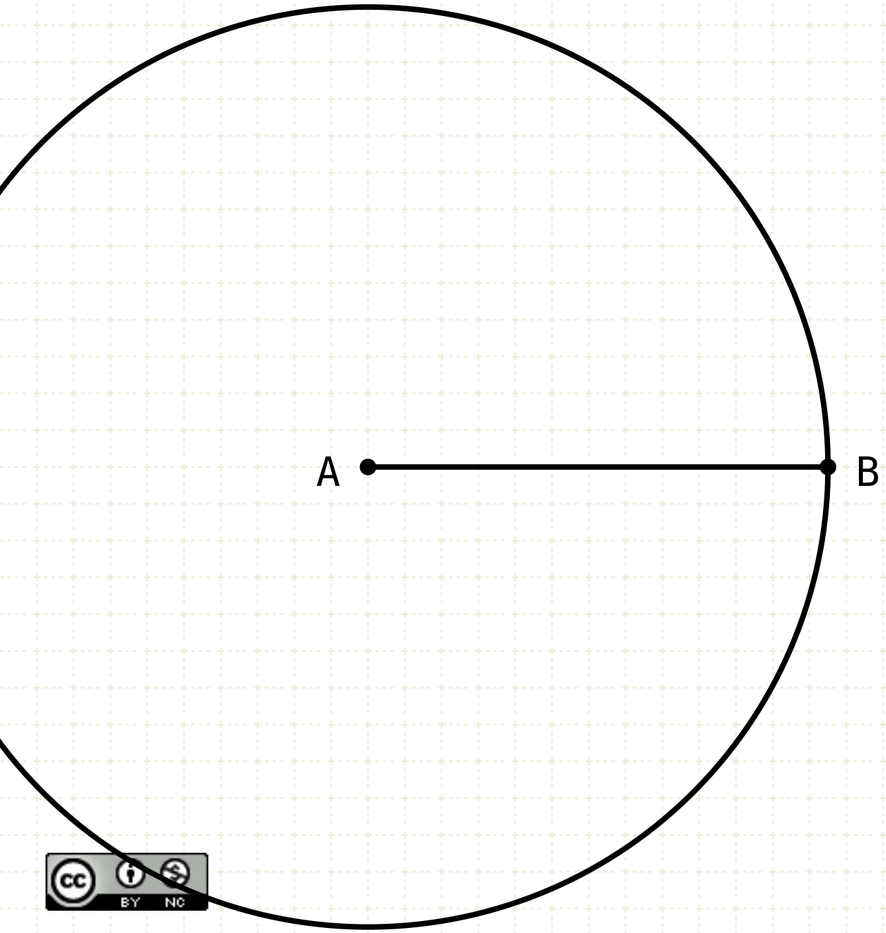
Proposition 1 of Book I

To construct an equilateral triangle on a given finite straight line.

Construction:

Start with line segment AB

Create a circle with center A and radius AB



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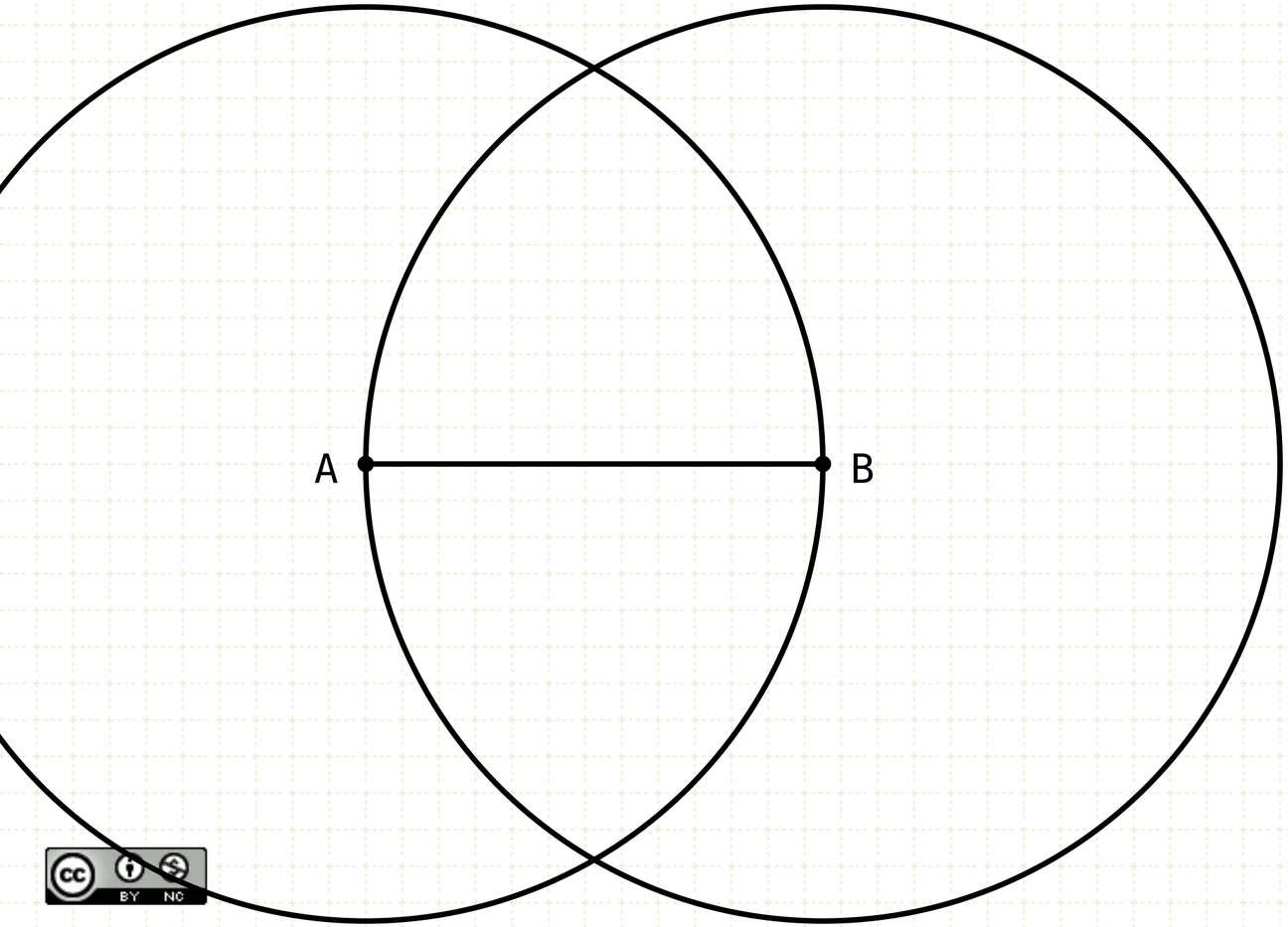

Construction:

Start with line segment AB

Create a circle with center A and radius AB

Create a circle with center B and radius AB

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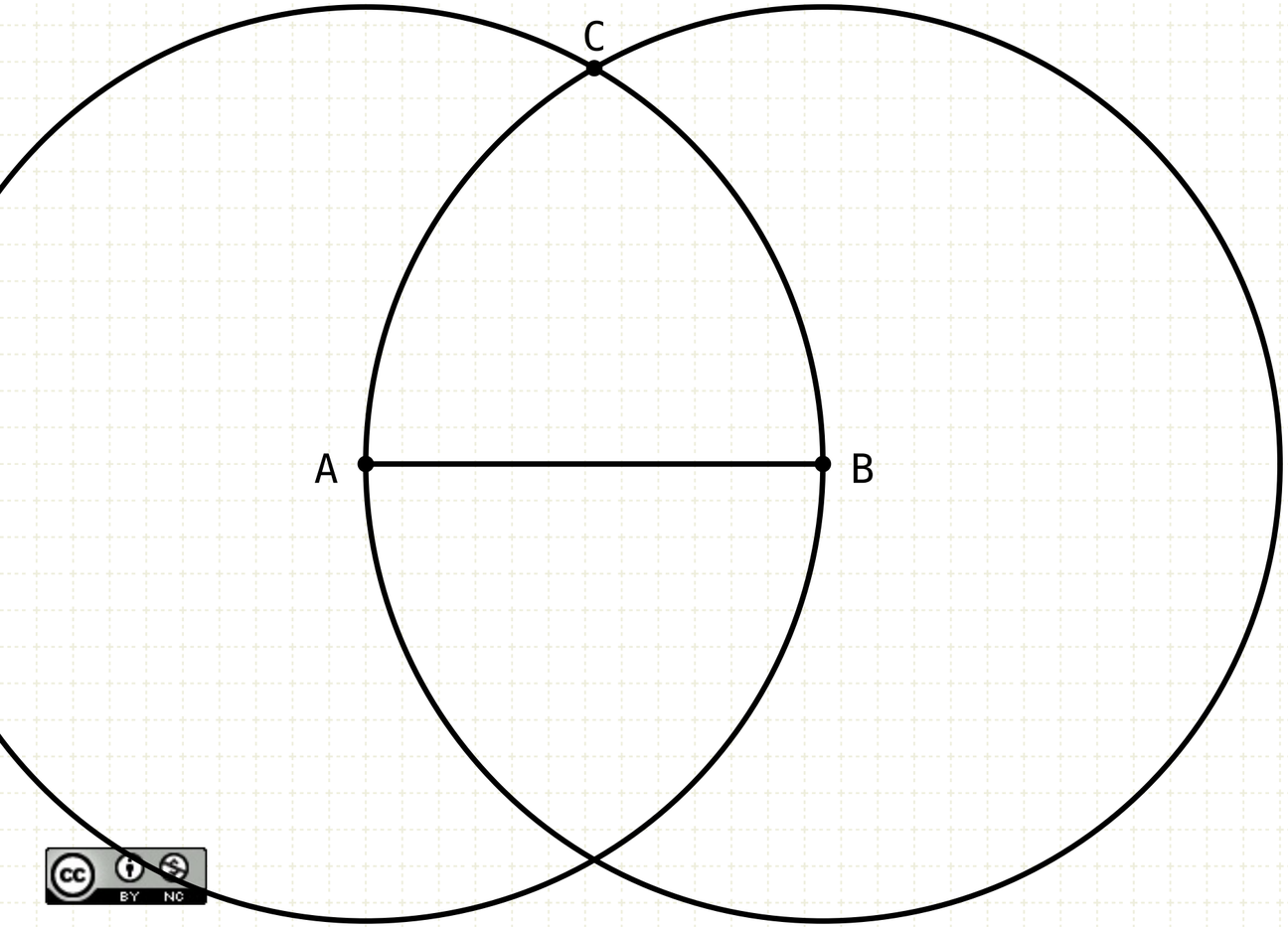

Construction:

Start with line segment AB

Create a circle with center A and radius AB

Create a circle with center B and radius AB

Label the intersection point C

Proposition 1 of Book I

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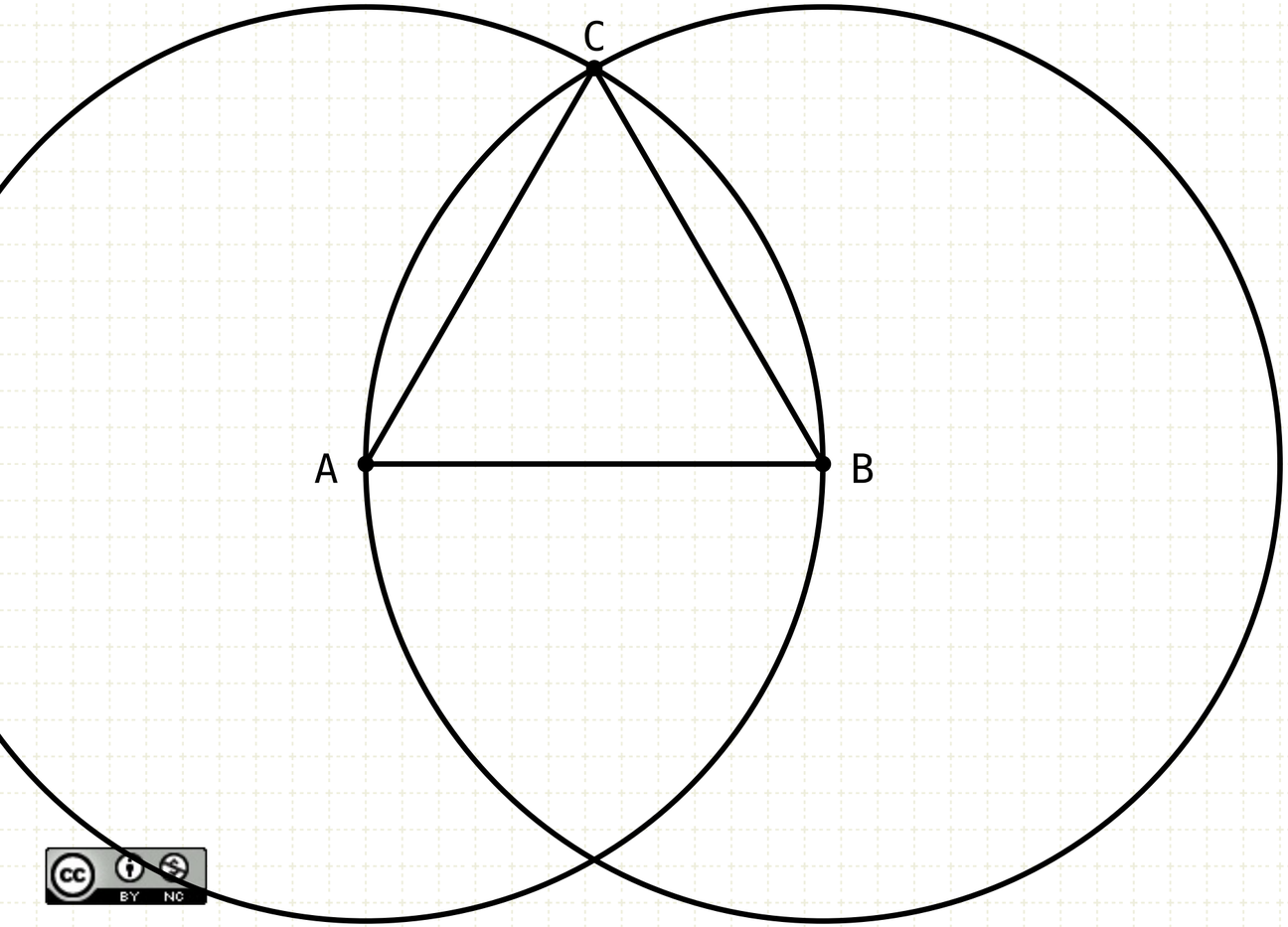

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Start with line segment AB

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Create line AC and CB

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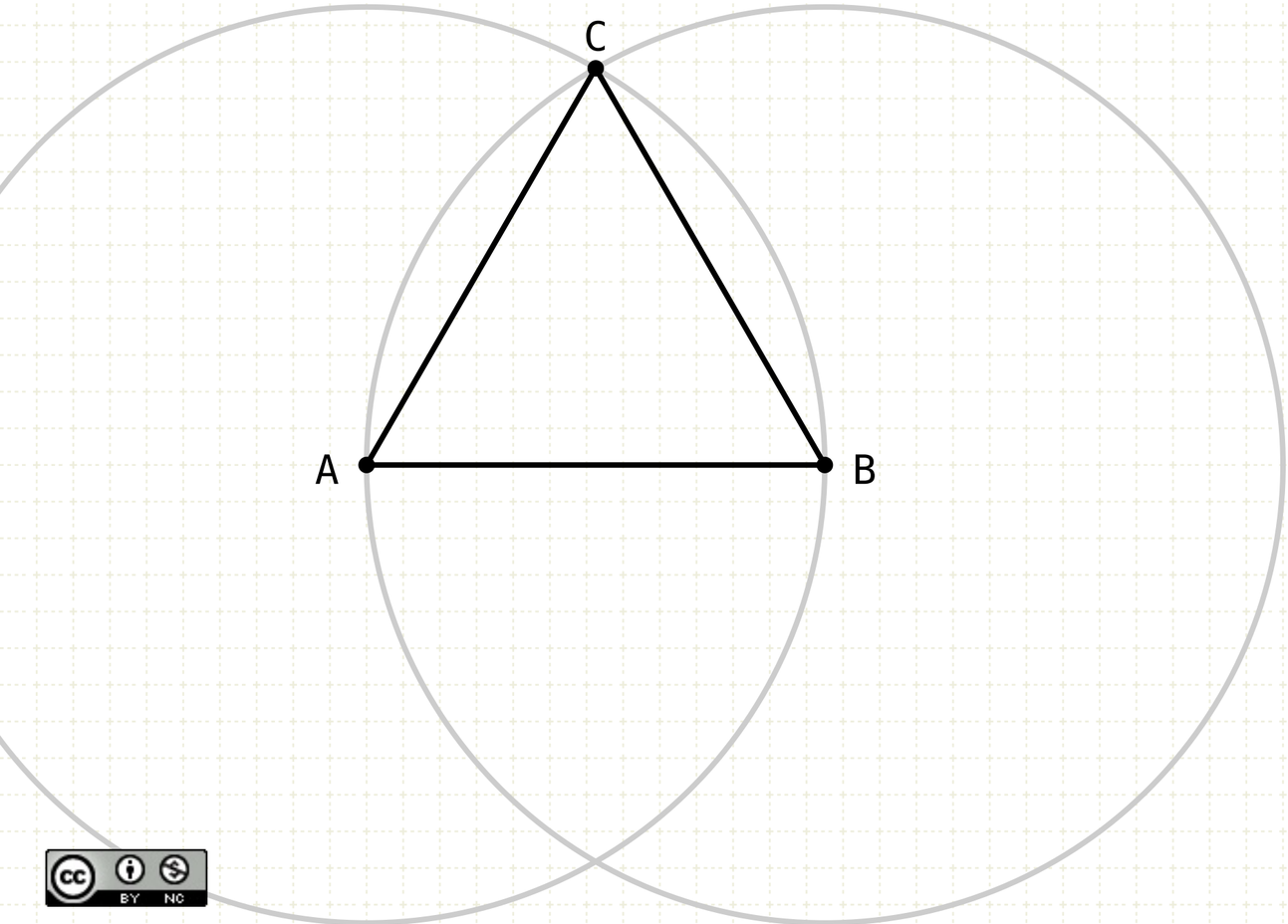

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Start with line segment AB

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Triangle ABC is an equilateral triangle

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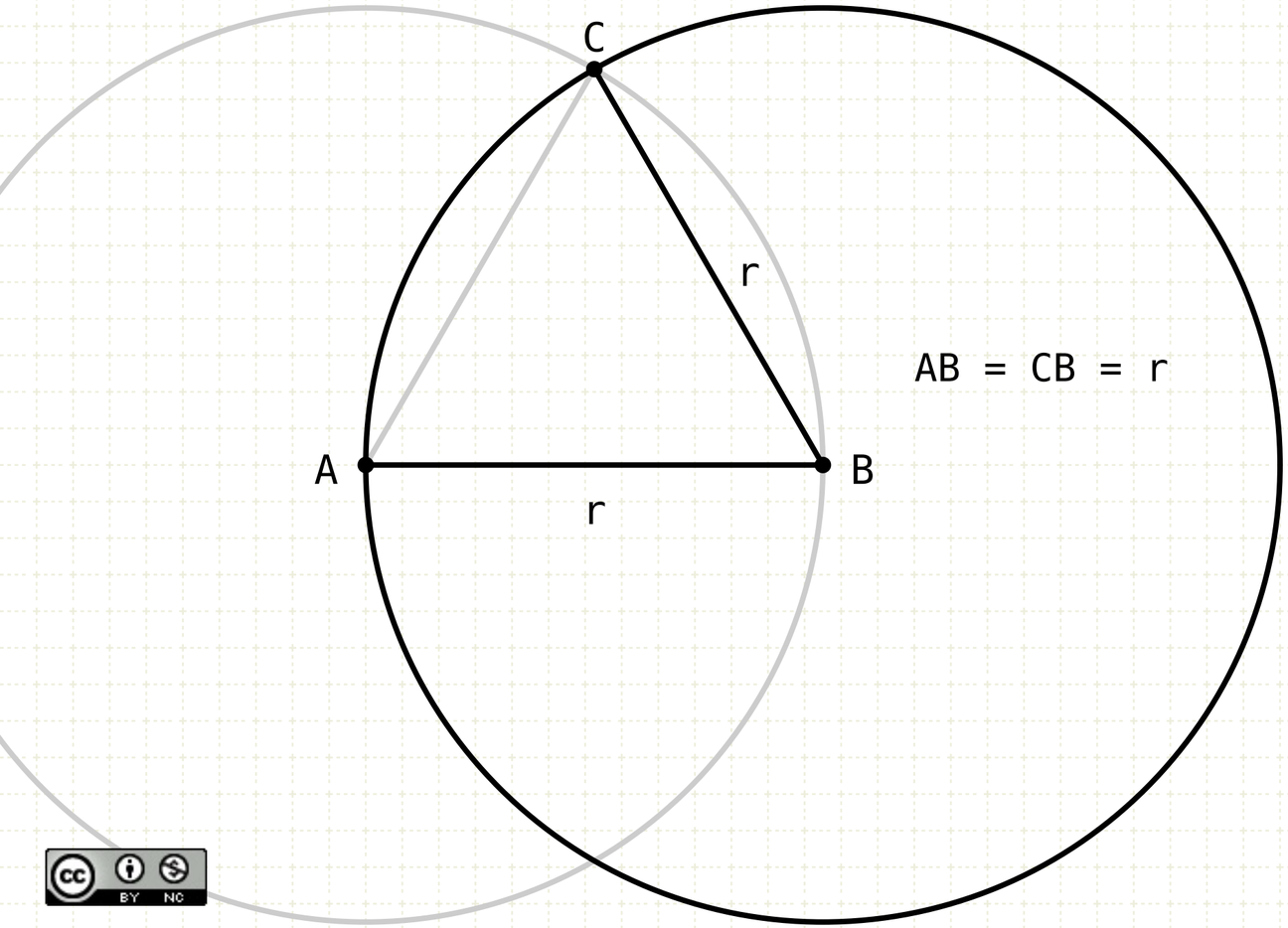

Construction:

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Triangle ABC is an equilateral triangle

Proof:

AB and CB are radii of the same circle - hence they are equal

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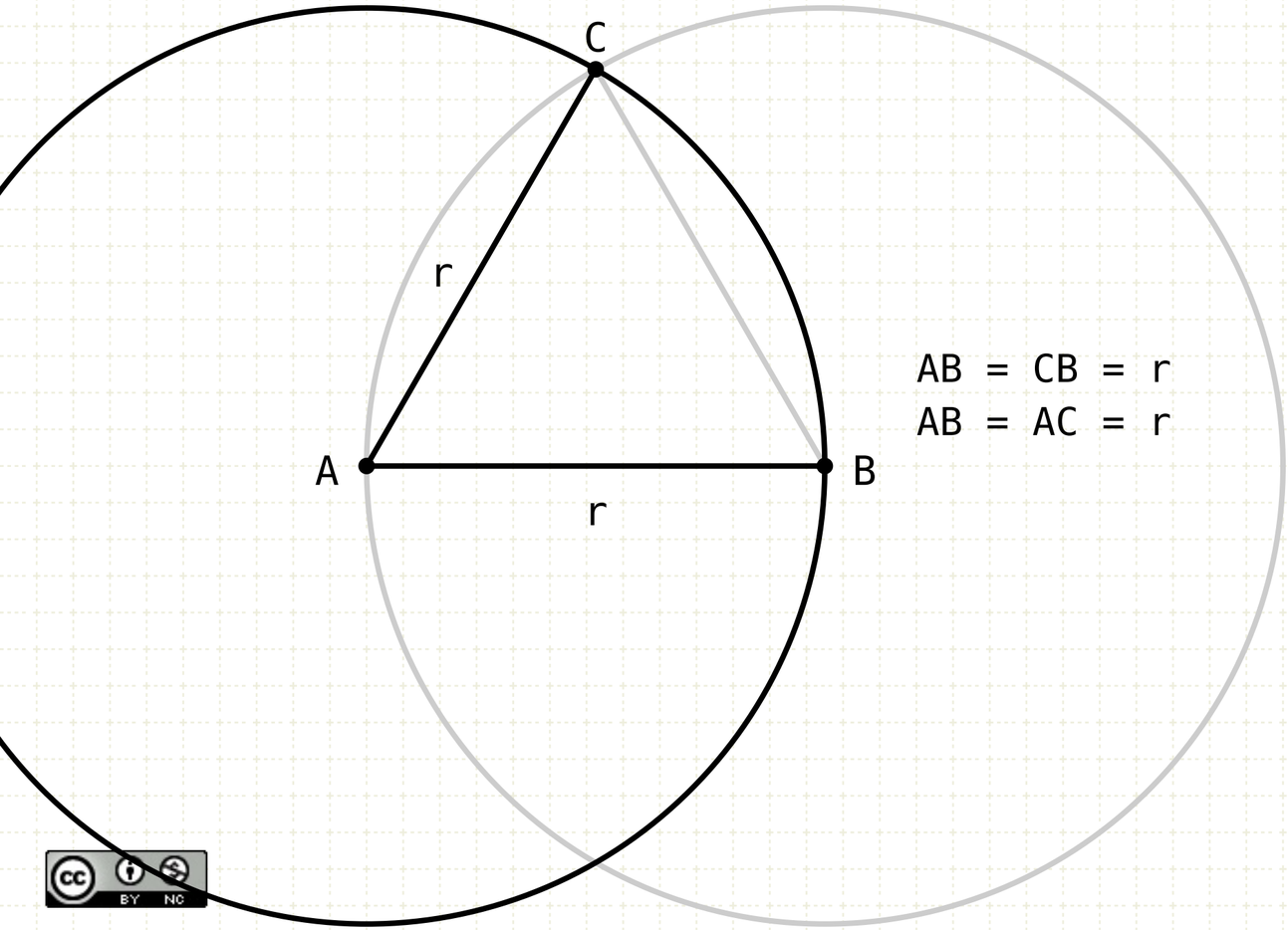

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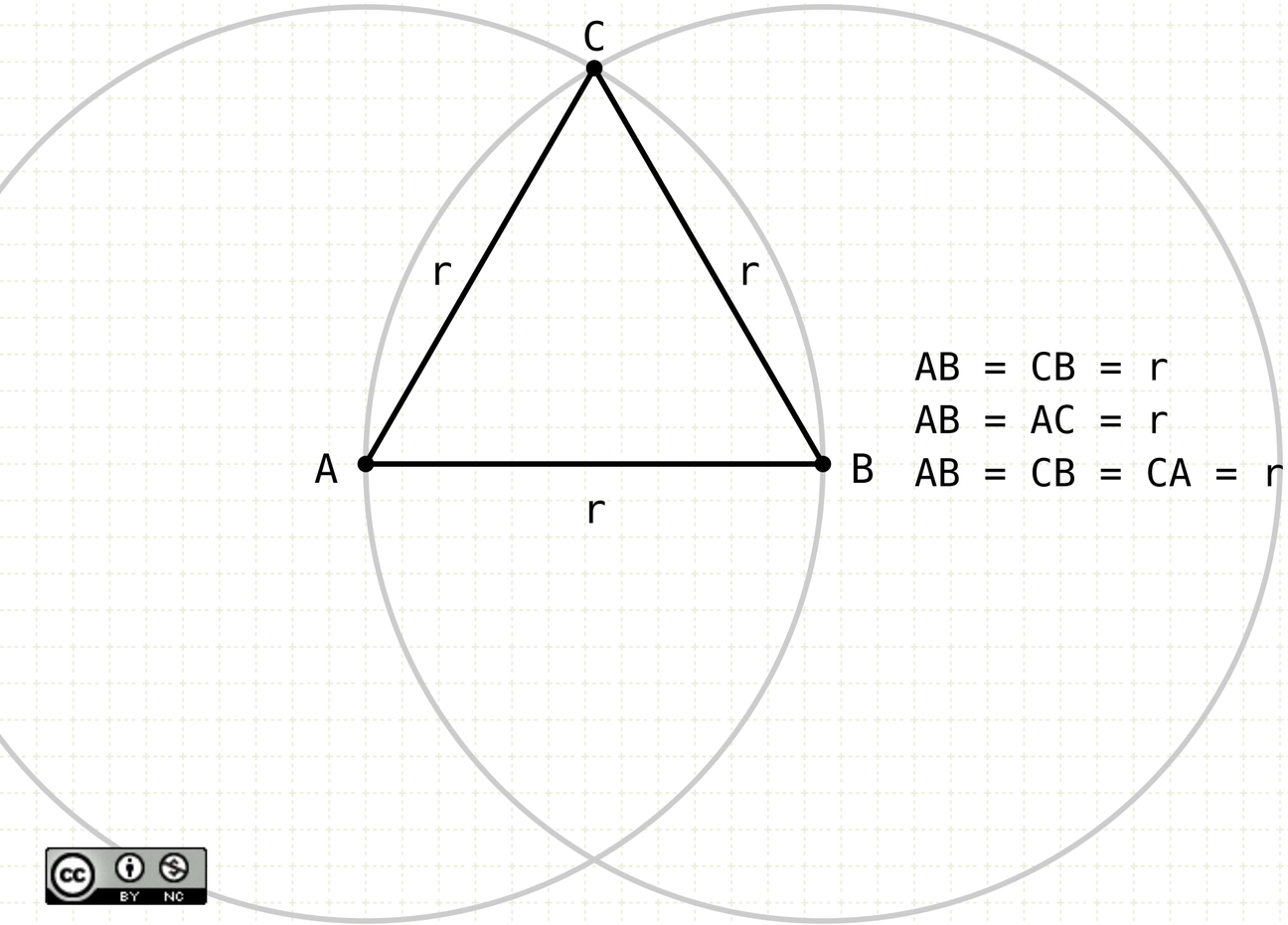

AB = CB = r
AB = AC = r
AB = CB = CA = r

Construction:

Start with line segment AB

Create a circle with center A and radius AB

Create a circle with center B and radius AB

Label the intersection point C

Create line AC and CB

Triangle ABC is an equilateral triangle

Proof:

AB and CB are radii of the same circle - hence they are equal

AB and AC are radii of the same circle - hence they are equal

If AB equals AC and AB equals CB, then AC equals CB

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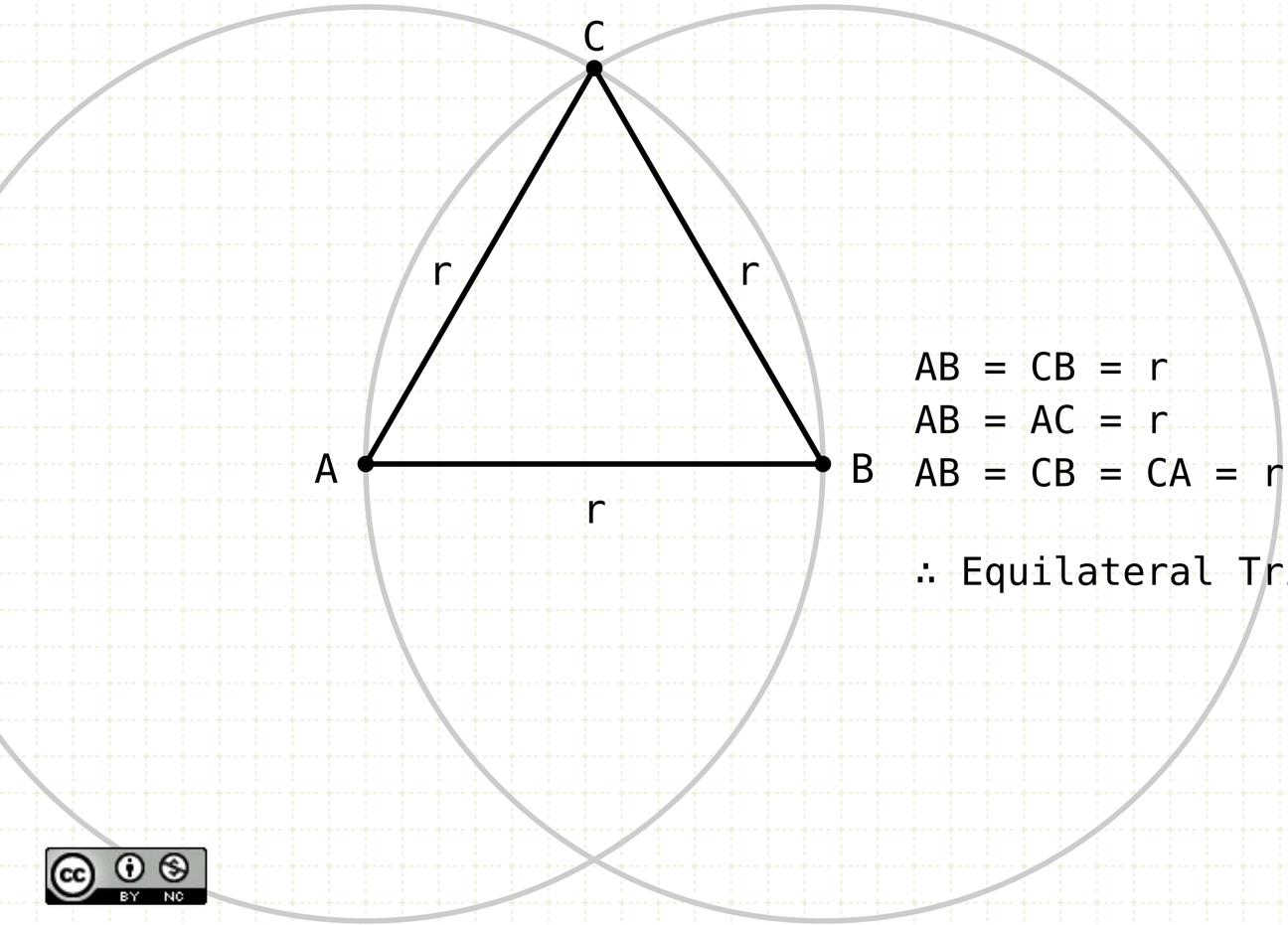

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∴ Equilateral Triangle!

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