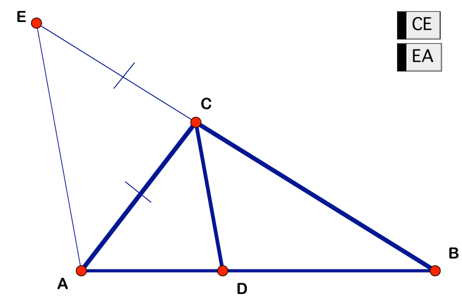
Theorem 39. If CD is the angle bisector, then

$$\frac{|AD|}{|DB|}=\frac{|AC|}{|BC|}$$



Proof:

Statements:	Reasons:
1. On the line CB find a point E such that it is on the other side from C than B and $|CE|=|AC|$.	1. The Ruler Axiom.
2. $\triangle ACE$ is isosceles.	2. Follows from 1.
3. $\angle CAE=\angle CEA$.	3. 2. and Pons Asinorum.
4. $\angle ACB=2\angle BCD$.	4. Given.
5. $\angle ACB=\angle CAE+\angle CEA$.	5. Exterior angle= the sum of two inner.
6. $\angle ACB=2\angle CEA$.	6. From 3. and 5.
7. $\angle CEA=\angle BCD$.	7. From 4. and 6.
8. $CD \parallel EA$	8. 7. and Theorem 18 (if corresponding angles are equal then lines are parallel).
9. $\frac{|AD|}{|DB|}=\frac{|EC|}{|BC|}=\frac{|AC|}{|BC|}$	9. Thales Theorem.

Problem 27. If in a $\triangle ABC$, the median CM coinsides with the angle bisector, then $\triangle ABC$ is isosceles.