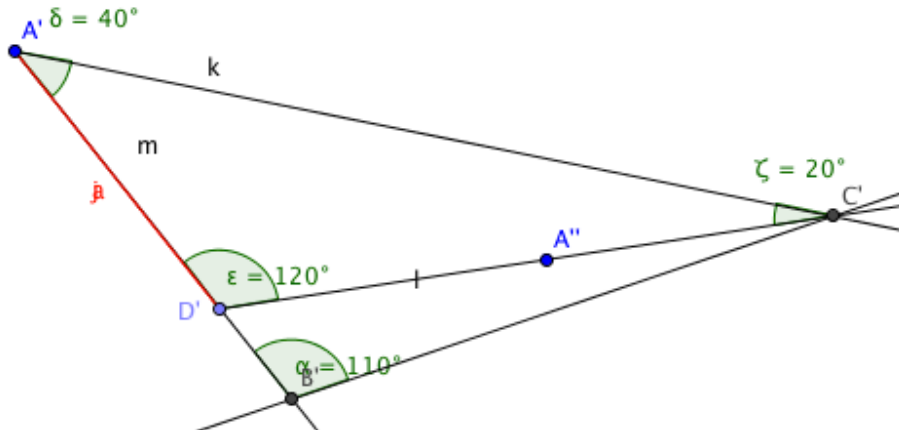


Probleme 699 – solution de Christian Boissinotte

Dans un triangle ABC, depuis C on trace le segment CD (D sur AB), si $AD = 4\sqrt{3}$ cm ,
 $m\angle ABC = 110^\circ$, $m\angle BAC = 40^\circ$ et $m\angle DCA = 20^\circ$. Déterminer BC.



$$AC = \frac{AD \sin 120^\circ}{\sin 20^\circ}$$

$$BC = \frac{AC \sin 40^\circ}{\sin 110^\circ} = \frac{4\sqrt{3} \sqrt{3} \sin 40^\circ}{2 \sin 20^\circ \sin 70^\circ}$$

$$BC = \frac{12 \sin 40^\circ}{2 \sin 20^\circ \sin 70^\circ} = \frac{12 \sin 40^\circ}{2 \sin 20^\circ \sin(90^\circ - 20^\circ)} = \frac{12 \sin 40^\circ}{2 \sin 20^\circ \cos(20^\circ)} = \frac{12 \sin 40^\circ}{\sin 40^\circ} = 12$$