

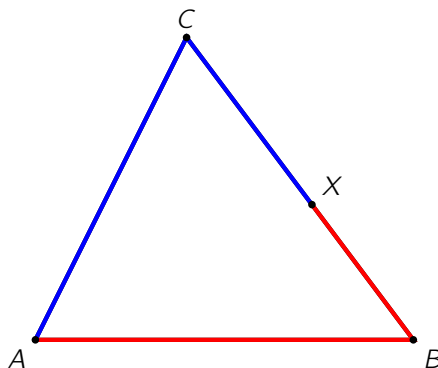
quiz 2

math228, classical geometry

fall 2021

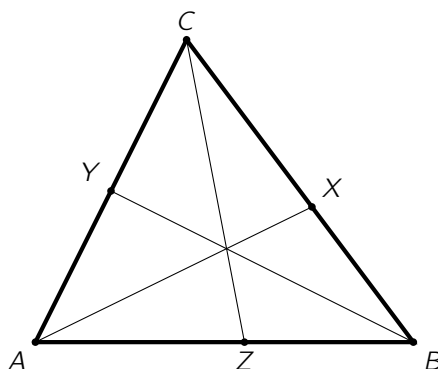
The quiz is worth 10 points. Justify all your claims rigorously.

- a. State Ceva's theorem. (3 points)
- b. Let ABC be a triangle and let X be a point on ABC different than A such that X bisects the perimeter of ABC . For example, in the following drawing, $|AC| + |CX| = |AB| + |BX|$.



Argue that X will always lie on the segment BC . Thus, the segment AX is a cevian, called a *splitter* of ABC . (bonus 5 points)

- c. Show that the three splitters (defined in b.) of a triangle are concurrent.



Their common intersection is called the *Nagel point* of ABC . (7 points)