

5.3

Angle Bisectors of Triangles (Part 1)

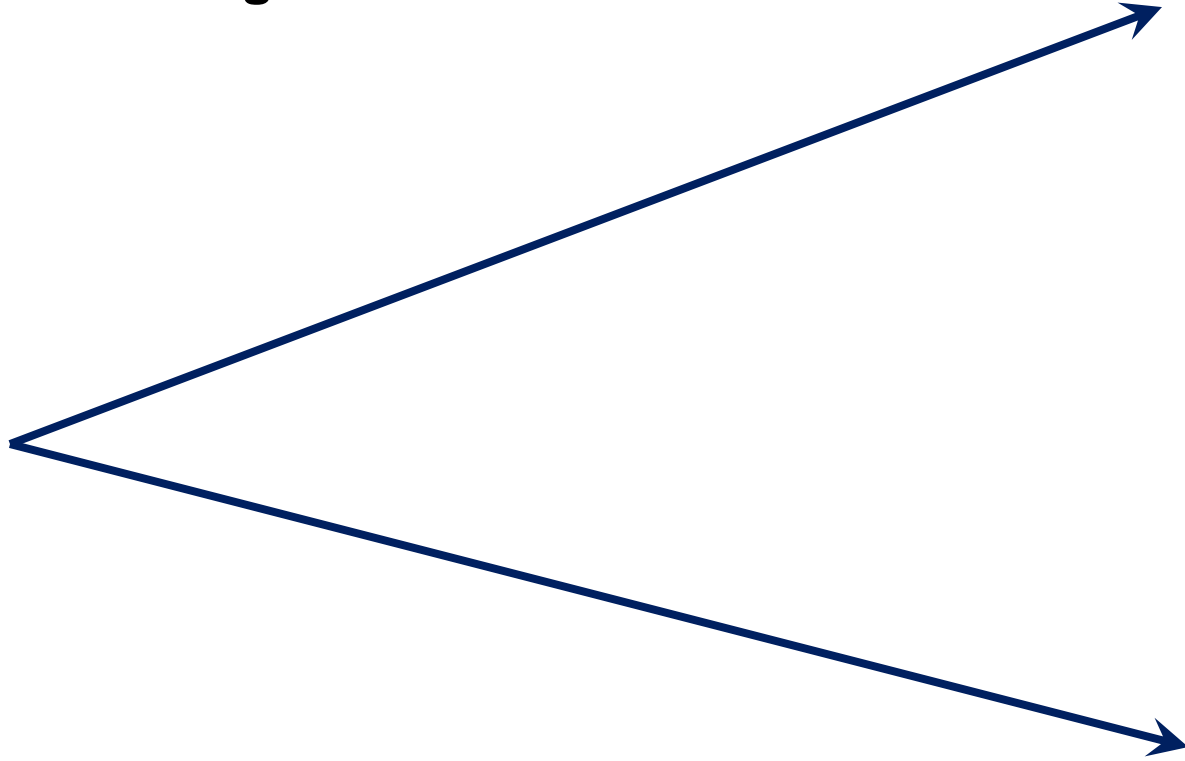
Distance Between a Line and Point

The distance from a point to a line is the length of the _____ segment from the point to the line.



Angle Bisector Observations

If you were given an angle bisector of a segment, what could you say about the distance of any point on the angle bisector to the sides of that segment?

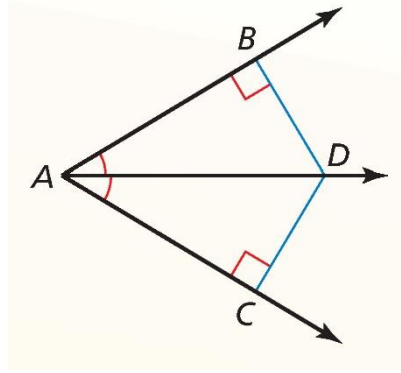


Proof of the Angle Bisector Theorem

Given: \overrightarrow{AD} bisects $\angle BAC$

$\overrightarrow{DB} \perp \overrightarrow{AB}$ and $\overrightarrow{DC} \perp \overrightarrow{AC}$

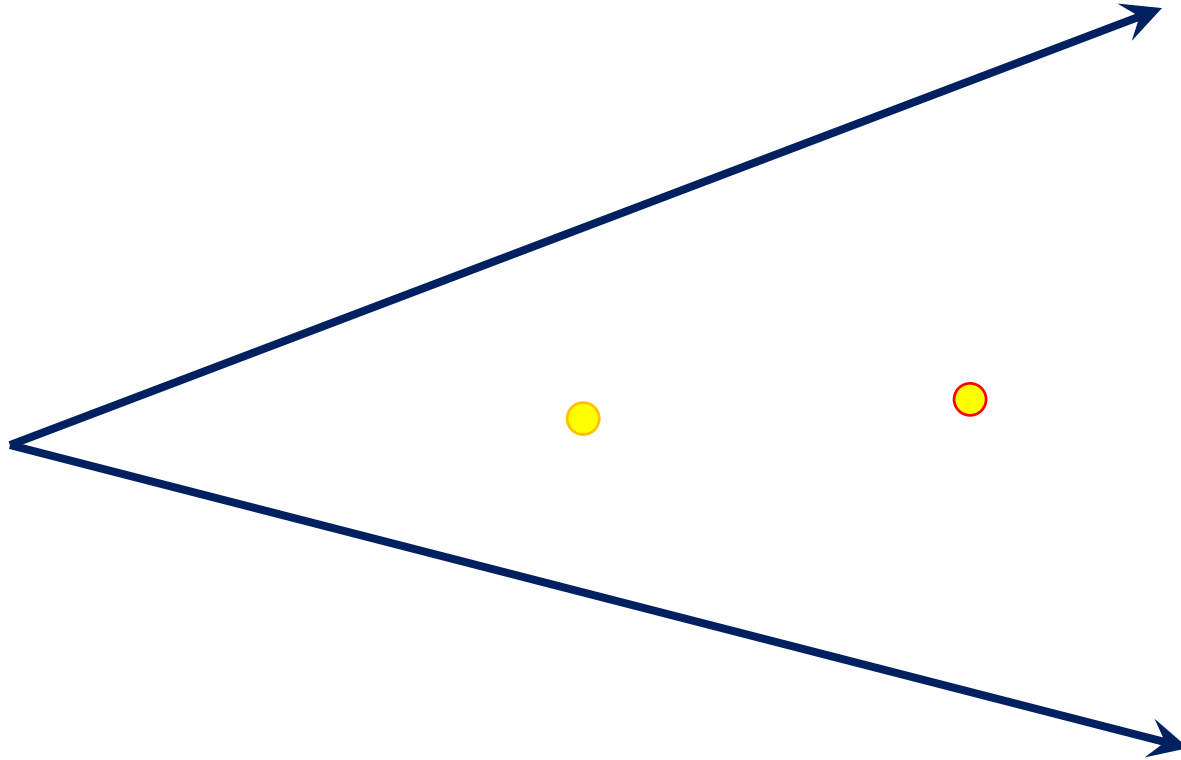
Prove: $DB = DC$



Statements	Reasons

Angle Bisector Observations

If points were equidistant from the sides of an angle, on what object must those points lie on?



Angle Bisector Theorem

If a point lies on the _____, then it is _____ from the two sides of the angle.



POK

Converse of the Angle Bisector Theorem

If a point is in the interior of an angle and is _____ from the two sides of the angle, then it lies on _____.

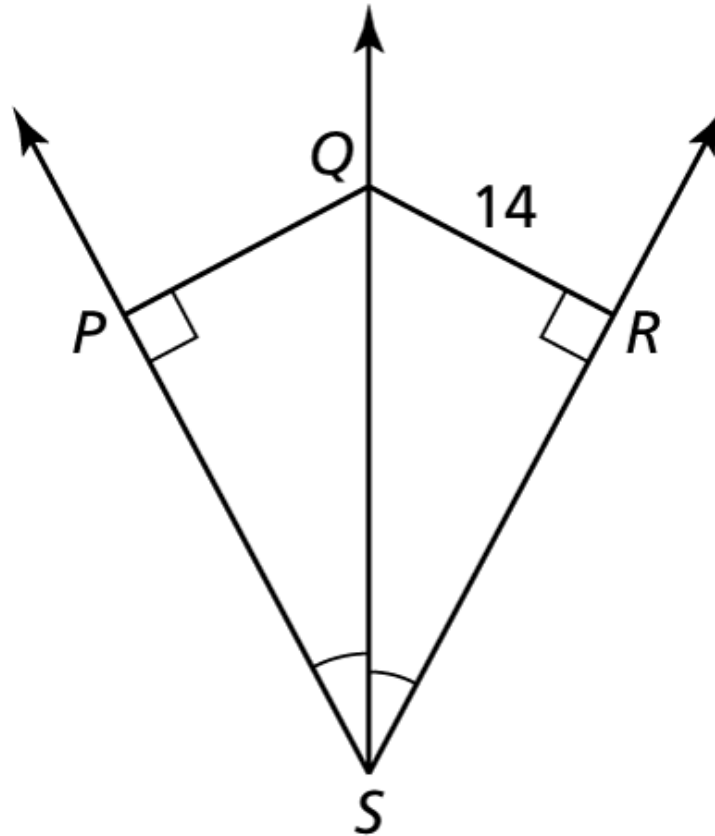


POK

Practice

Find the indicated measure. Explain your reasoning.

1) PQ



Practice

Find the indicated measure. Explain your reasoning.

2) $m\angle DGF$

