

5.3 Angle Bisectors in Triangles

Answers

1. $x = 8^\circ$
2. $x = 7^\circ$
3. $x = 9$
4. $x = 9$
5. No, the line segment must also be perpendicular to the sides of the angle.
6. Yes, the angles are marked congruent.
7. Every type of triangle.
8. A diagonal
9. 4 isosceles right triangles with half of each diagonal as the legs and 4 isosceles right triangles with the sides of the squares as the legs.
- 10.

<i>Statement</i>	<i>Reason</i>
1. $\overline{AD} \cong \overline{DC}$	Given
2. $\overline{BA} \perp \overline{AD}$ and $\overline{BC} \perp \overline{DC}$	The shortest distance from a point to a line is perpendicular.
3. $\angle DAB$ and $\angle DCB$ are right angles	Definition of perpendicular lines
4. $\angle DAB \cong \angle DCB$	All right angles are congruent
5. $\overline{BD} \cong \overline{BD}$	Reflexive PoC
6. $\triangle ABD \cong \triangle CBD$	HL
7. $\angle ABD \cong \angle DBC$	CPCTC
8. \overline{BD} bisects $\angle ABC$	Definition of an angle bisector