CHAPTER 5 Chapter Review

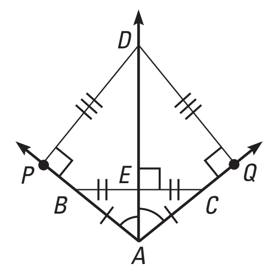
VOCABULARY

- perpendicular bisector, p. 264
- equidistant from two points, p. 264
- distance from a point to a line, p. 266
- equidistant from two lines, p. 266
- perpendicular bisector of a triangle, p. 272
- concurrent lines, p. 272
- point of concurrency, p. 272
- circumcenter of a triangle, p. 273
- angle bisector of a triangle, p. 274
- incenter of a triangle, p. 274
- median of a triangle, p. 279
- centroid of a triangle, p. 279
- altitude of a triangle, p. 281
- orthocenter of a triangle, p. 281
- midsegment of a triangle, p. 287
- indirect proof, p. 302

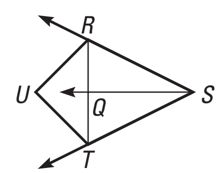
5.1 PERPENDICULARS AND BISECTORS

Examples on pp. 264–267

EXAMPLES In the figure, $\overrightarrow{AD}$ is the angle bisector of $\angle BAC$ and the perpendicular bisector of $\overline{BC}$. You know that $BE = CE$ by the definition of perpendicular bisector and that $AB = AC$ by the Perpendicular Bisector Theorem. Because $\overline{DP} \perp \overrightarrow{AP}$ and $\overline{DQ} \perp \overrightarrow{AQ}$, then DP and DQ are the distances from D to the sides of $\angle PAQ$ and you know that $DP = DQ$ by the Angle Bisector Theorem.



In Exercises 1–3, use the diagram.



1. If $\overrightarrow{SQ}$ is the perpendicular bisector of $\overline{RT}$, explain how you know that $\overline{RQ} \cong \overline{TQ}$ and $\overline{RS} \cong \overline{TS}$.

2. If $\overline{UR} \cong \overline{UT}$, what can you conclude about U?

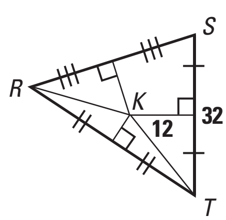
3. If Q is equidistant from $\overrightarrow{SR}$ and $\overrightarrow{ST}$, what can you conclude about Q?

5.2 BISECTORS OF A TRIANGLE

Examples on pp. 272–274

EXAMPLES The perpendicular bisectors of a triangle intersect at the *circumcenter*, which is equidistant from the vertices of the triangle. The angle bisectors of a triangle intersect at the *incenter*, which is equidistant from the sides of the triangle.

4. The perpendicular bisectors of $\triangle RST$ intersect at K. Find KR.



5. The angle bisectors of $\triangle XYZ$ intersect at W. Find WB.