



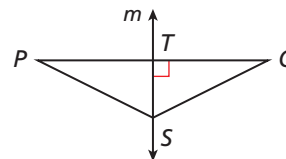
## GUIDED PRACTICE

1. **Vocabulary** A     ?      is the *locus* of all points in a plane that are *equidistant* from the endpoints of a segment. (*perpendicular bisector* or *angle bisector*)

## SEE EXAMPLE 1

1 Use the diagram for Exercises 2–4.

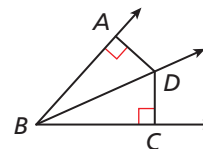
2. Given that  $PS = 53.4$ ,  $QT = 47.7$ , and  $QS = 53.4$ , find  $PQ$ .
3. Given that  $m$  is the perpendicular bisector of  $\overline{PQ}$  and  $SQ = 25.9$ , find  $SP$ .
4. Given that  $m$  is the perpendicular bisector of  $\overline{PQ}$ ,  $PS = 4a$ , and  $QS = 2a + 26$ , find  $QS$ .



## SEE EXAMPLE 2

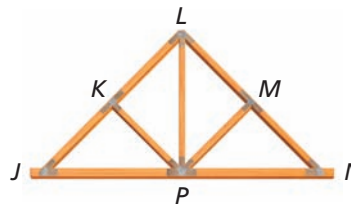
2 Use the diagram for Exercises 5–7.

5. Given that  $\overline{BD}$  bisects  $\angle ABC$  and  $CD = 21.9$ , find  $AD$ .
6. Given that  $AD = 61$ ,  $CD = 61$ , and  $m\angle ABC = 48^\circ$ , find  $m\angle CBD$ .
7. Given that  $DA = DC$ ,  $m\angle DBC = (10y + 3)^\circ$ , and  $m\angle DBA = (8y + 10)^\circ$ , find  $m\angle DBC$ .



## SEE EXAMPLE 3

3 **Carpentry** For a king post truss to be constructed correctly,  $P$  must lie on the bisector of  $\angle JLN$ . How can braces  $\overline{PK}$  and  $\overline{PM}$  be used to ensure that  $P$  is in the proper location?



## SEE EXAMPLE 4

4 Write an equation in point-slope form for the perpendicular bisector of the segment with the given endpoints.

9.  $M(-5, 4)$ ,  $N(1, -2)$       10.  $U(2, -6)$ ,  $V(4, 0)$       11.  $J(-7, 5)$ ,  $K(1, -1)$

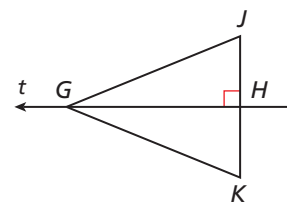
## PRACTICE AND PROBLEM SOLVING

## Independent Practice

For Exercises	See Example
12–14	1
15–17	2
18	3
19–21	4

Use the diagram for Exercises 12–14.

12. Given that line  $t$  is the perpendicular bisector of  $\overline{JK}$  and  $GK = 8.25$ , find  $GJ$ .
13. Given that line  $t$  is the perpendicular bisector of  $\overline{JK}$ ,  $JG = x + 12$ , and  $KG = 3x - 17$ , find  $KG$ .
14. Given that  $GJ = 70.2$ ,  $JH = 26.5$ , and  $GK = 70.2$ , find  $JK$ .



Use the diagram for Exercises 15–17.

15. Given that  $m\angle RSQ = m\angle TSQ$  and  $TQ = 1.3$ , find  $RQ$ .
16. Given that  $m\angle RSQ = 58^\circ$ ,  $RQ = 49$ , and  $TQ = 49$ , find  $m\angle RST$ .
17. Given that  $RQ = TQ$ ,  $m\angle QSR = (9a + 48)^\circ$ , and  $m\angle QST = (6a + 50)^\circ$ , find  $m\angle QST$ .

