

**LESSON**  
**3-4** **Problem Solving**  
**Perpendicular Lines**

A wall rack for holding CDs is shown. Use the figure for Exercises 1 and 2.

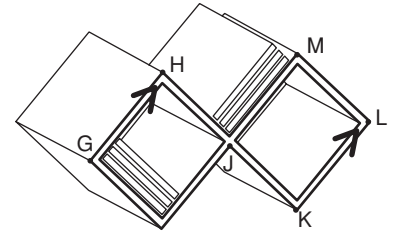
1. Explain why  $\overline{HK}$  must be perpendicular to  $\overline{KL}$ .

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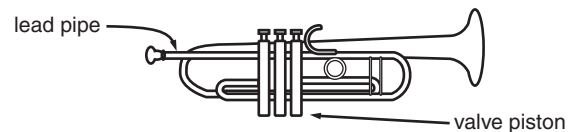
2. If  $\overline{JM} \perp \overline{HK}$ , explain why  $\overline{JM} \parallel \overline{GH}$ .

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3. The valve pistons on a trumpet are all perpendicular to the lead pipe. Explain why the valve pistons must be parallel to each other.

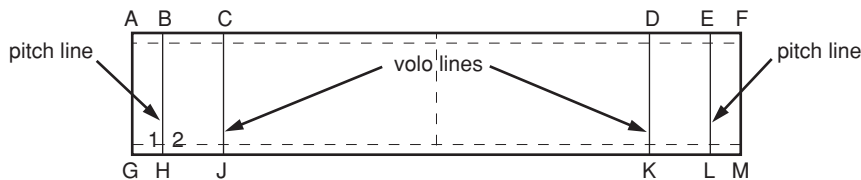


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Use the diagram of a bocce court for Exercises 4 and 5.  
Choose the best answer.



4. If  $m\angle 1 = m\angle 2$ , what can you conclude?
- A**  $\overline{BH} \perp \overline{GJ}$       **C**  $\overline{BH} \parallel \overline{CJ}$   
**B**  $\overline{AC} \perp \overline{BH}$       **D**  $\overline{AC} \parallel \overline{GJ}$
5. The pitch lines are parallel, and the first pitch line is perpendicular to the long sides of the court. Which is a correct conclusion?
- F**  $BH = CJ$       **H**  $\overline{EL} \perp \overline{AF}$   
**G**  $\overline{BH} \parallel \overline{CJ}$       **J**  $\overline{DK} \perp \overline{AF}$