

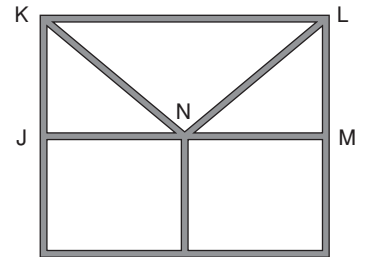
LESSON **4-5** **Problem Solving**
Triangle Congruence: ASA, AAS, and HL

Use the following information for Exercises 1 and 2.

Melanie is at hole 6 on a miniature golf course. She walks east 7.5 meters to hole 7. She then faces south, turns 67° west, and walks to hole 8. From hole 8, she faces north, turns 35° west, and walks to hole 6.

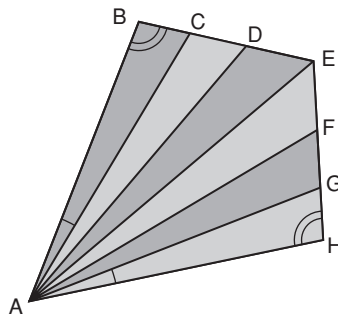
1. Draw the section of the golf course described.
Label the measures of the angles in the triangle.
2. Is there enough information given to determine the location of holes 6, 7, and 8? Explain.

3. A section of the front of an English Tudor home is shown in the diagram. If you know that $\overline{KN} \cong \overline{LN}$ and $\overline{JN} \cong \overline{MN}$, can you use HL to conclude that $\triangle JKN \cong \triangle MLN$? Explain.



Use the diagram of a kite for Exercises 4 and 5.

\overline{AE} is the angle bisector of $\angle DAF$ and $\angle DEF$.



4. What can you conclude about $\triangle DEA$ and $\triangle FEA$?
 - A $\triangle DEA \cong \triangle FEA$ by HL.
 - B $\triangle DEA \cong \triangle FEA$ by AAA.
 - C $\triangle DEA \cong \triangle FEA$ by ASA.
 - D $\triangle DEA \cong \triangle FEA$ by SAS.
5. Based on the diagram, what can you conclude about $\triangle BCA$ and $\triangle HGA$?
 - F $\triangle BCA \cong \triangle HGA$ by HL.
 - G $\triangle BCA \cong \triangle HGA$ by AAS.
 - H $\triangle BCA \cong \triangle HGA$ by ASA.
 - J It cannot be shown using the given information that $\triangle BCA \cong \triangle HGA$.