Unit 1, Lesson 6

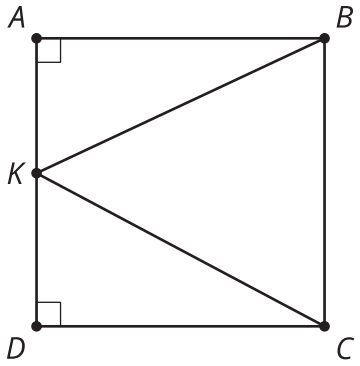
Quilt Questions

Let's ask and answer questions about figures made up of triangles.

6.1 What Do You Want to Know?

Which segment is longer, BK or CK? Use logical reasoning to defend your answer. Do not use a ruler.

$m\angle BAD = m\angle ADC = 90^\circ$



What specific information do you need to be able to solve the problem?

6.2 Info Gap: Quilt Questions

Your teacher will give you either a problem card or a data card. Do not show or read your card to your partner.

If your teacher gives you the problem card:

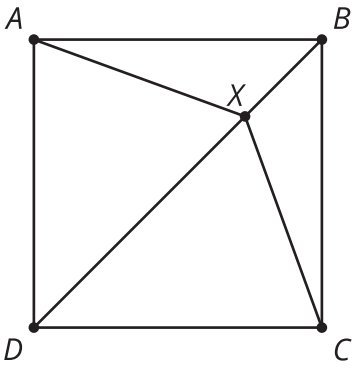
1. Silently read your card, and think about what information you need to answer the question.
2. Ask your partner for the specific information that you need. "Can you tell me _____?"
3. Explain to your partner how you are using the information to solve the problem. "I need to know _____ because . . . ."

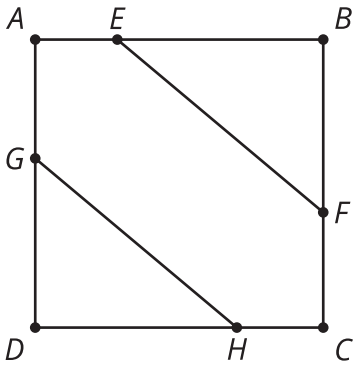
   Continue to ask questions until you have enough information to solve the problem.
4. Once you have enough information, share the problem card with your partner, and solve the problem independently.
5. Read the data card, and discuss your reasoning.

If your teacher gives you the data card:

1. Silently read your card. Wait for your partner to ask for information.
2. Before telling your partner any information, ask, "Why do you need to know _____?"
3. Listen to your partner's reasoning and ask clarifying questions. Only give information that is on your card. Do not figure out anything for your partner!

   These steps may be repeated.
4. Once your partner says they have enough information to solve the problem, read the problem card, and solve the problem independently.
5. Share the data card, and discuss your reasoning.



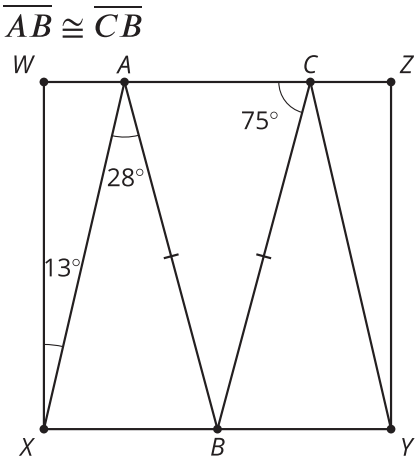


Are you ready for more?

Draw a square $ABCD$. Add at least one point and some line segments to make a design for a quilt square like those used in the *Information Gap*.

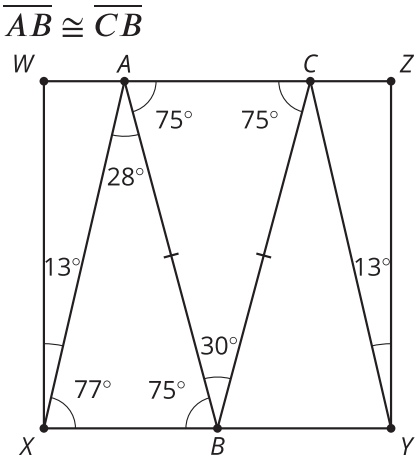
Lesson 6 Summary

Here is square $WXYZ$ with some segments added to form a pattern. Suppose we need to decide which side is longer, AX or AB. We would need a little more information. After some discussion, we learn AB is congruent to CB, angle WXA is 13 degrees, angle XAB is 28 degrees, and angle ACB is 75 degrees.



It may be tempting to say AX is longer than AB because AX is opposite a 90-degree angle and AB is opposite a 75-degree angle. Those angles don't come from the same triangle, though, so we cannot make that conclusion. We need more information about a triangle formed with both of those sides.

Using our knowledge of angle pairs and triangles, we add more angle information to the figure.



Now we have enough information about triangle XAB to conclude that AB is longer because, in triangle XAB, side AB is opposite a larger angle than side AX is.