

## Lesson 8 Practice Problems

1. Each statement is always true. Select **all** statements for which the converse is also always true.

A. Statement: If 2 angles are vertical, then they are congruent. Converse: If 2 angles are congruent, then they are vertical.

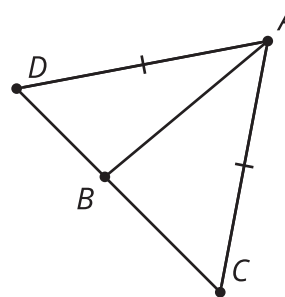
B. Statement: If 2 lines are perpendicular, then they intersect to form 4 right angles. Converse: If 2 lines intersect to form 4 right angles, then they are perpendicular.

C. Statement: If a point is equidistant from the 2 endpoints of a segment, then it lies on the perpendicular bisector of the segment. Converse: If a point lies on the perpendicular bisector of a segment, then it is equidistant from the 2 endpoints of the segment.

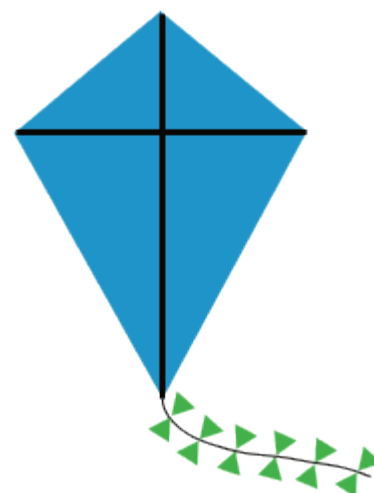
D. Statement: In an isosceles triangle, the base angles are congruent. Converse: If the base angles of a triangle are congruent, then the triangle is isosceles.

E. Statement: If 2 angles form a straight angle, then they are supplementary. Converse: If 2 angles are supplementary, then they form a straight angle.

2. In isosceles triangle  $DAC$ ,  $AD$  is congruent to  $AC$ . Kiran knows that the base angles of an isosceles triangle are congruent. What additional information does Kiran need to know in order to show that  $AB$  is a perpendicular bisector of segment  $CD$ ?



3. Han and Priya were making a kite. Han cut out a piece of fabric so that there were 2 short sides of the same length on top and 2 long sides of the same length on the bottom. Priya cut 2 pieces of wood to go across the diagonals of the kite. They attached the wood like this:

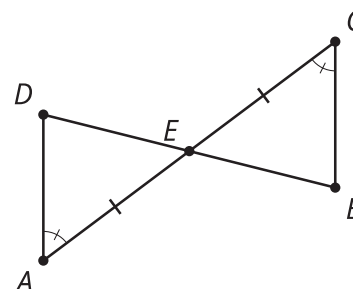


Han asked Priya to measure the angle to make sure the pieces of wood were perpendicular. Priya said, "If we were careful about the lengths of the sides of the fabric, we don't need to measure the angle. It has to be a right angle."

Complete Priya's explanation to Han.

4. Prove triangle  $ADE$  is congruent to triangle  $CBE$ .

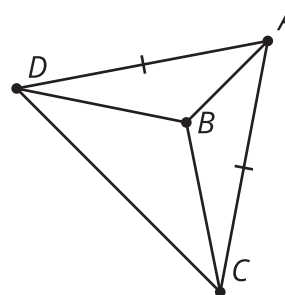
$$\angle A \cong \angle C, \overline{AE} \cong \overline{CE}$$



(From Unit 2, Lesson 7.)

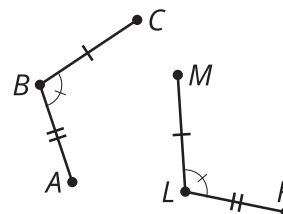
5. Triangle  $DAC$  is isosceles. What information do you need to show that triangle  $DBA$  is congruent to triangle  $CBA$  by the Side-Angle-Side Triangle Congruence Theorem?

$$\overline{AD} \cong \overline{AC}$$



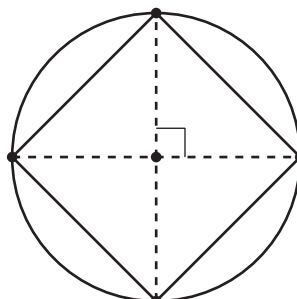
(From Unit 2, Lesson 6.)

6. Write a sequence of rigid motions to take figure  $CBA$  to figure  $MLK$ .



(From Unit 2, Lesson 5.)

7. Here is a quadrilateral inscribed in a circle.



Jada says that it is square because folding it along the horizontal dashed line and then the vertical dashed line gives 4 congruent sides. Do you agree with Jada?

(From Unit 1, Lesson 7.)