### Lesson 9 Practice Problems

1. A kite is a quadrilateral which has 2 sides next to each other that are congruent and where the other 2 sides are also congruent. Given kite $WXYZ$, show that at least one of the diagonals of a kite decomposes the kite into 2 congruent triangles.
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1. Mai has proven that triangle $WYZ$ is congruent to triangle $WYX$ using the Side-Side-Side Triangle Congruence Theorem. Why can she now conclude that diagonal $WY$ bisects angles $ZWX$ and $ZYX$?
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1. $WXYZ$ is a kite. Angle $WXY$ has a measure of 133 degrees and angle $ZWX$ has a measure of 60 degrees. Find the measure of angle $ZYW$.
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1. Each statement is always true. Select **all** statements for which the converse is also always true.
	1. 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. 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.
	3. 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.
	4. Statement: If 2 angles are vertical, then they are congruent. Converse: If 2 angles are congruent, then they are vertical.
	5. 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.
* (From Unit 2, Lesson 8.)
1. Prove triangle $ABD$ is congruent to triangle $CDB$.
* $DC∥AB$
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* (From Unit 2, Lesson 7.)
1. Triangles $ACD$ and $BCD$ are isosceles. Angle $DBC$ has a measure of 84 degrees and angle $BDA$ has a measure of 24 degrees. Find the measure of angle $BAC$.
* $\overset{¯}{AD}≅\overset{¯}{AC}$ and $\overset{¯}{BD}≅\overset{¯}{BC}$
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* (From Unit 2, Lesson 6.)
1. Reflect right triangle $ABC$ across line $AB$. Classify triangle $CAC^{′}$ according to its side lengths. Explain how you know.
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* (From Unit 2, Lesson 1.)



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