

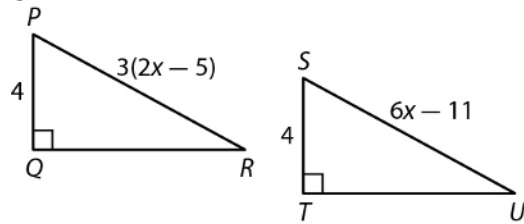
LESSON
6-3

HL Triangle Congruence

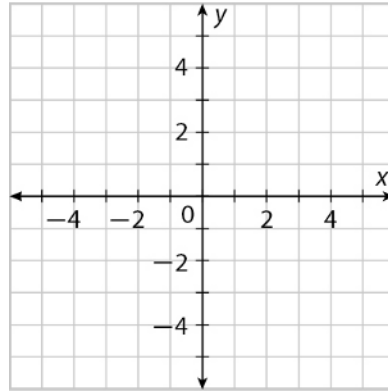
Practice and Problem Solving: A/B

For Problems 1–3, use the HL Congruence Theorem to determine if the given triangles are congruent. For Problems 2 and 3, make sure the triangles are right triangles. Explain your answers.

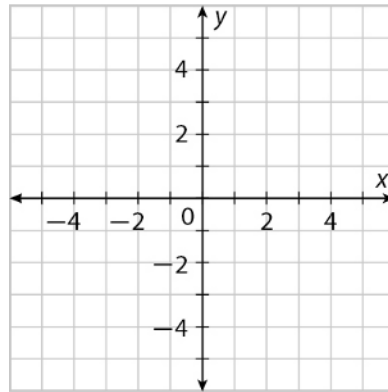
1. $\triangle PQR$ and $\triangle STU$



2. $A(-2, 2)$; $B(4, -4)$; $C(-2, -4)$; $D(1, -1)$
 $\triangle ACD$ and $\triangle BCD$



3. $A(0, 2)$; $B(-4, 0)$; $C(0, -3)$; $D(-2, 1)$
 $\triangle ACD$ and $\triangle BCD$

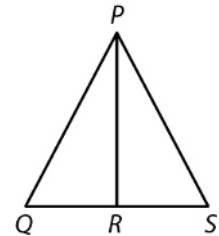


4. Complete the proof.

Given: isosceles triangle $\triangle PQS$ with $\overline{PQ} \cong \overline{PS}$
and $\overline{PR} \perp \overline{QS}$

Prove: $\triangle PQR \cong \triangle PSR$

Statements	Reasons
1.	1. Given
2. $\angle PRQ$ and $\angle PRS$ are right angles.	2.
3.	3. Definition of right triangle
4.	4.
5.	5.



Reading Strategies

1. ASA
2. No conclusion
3. No conclusion
4. No conclusion
5. AAS
6. ASA

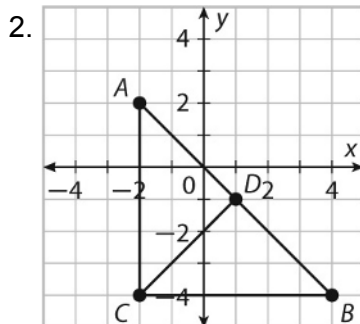
Success for English Learners

1. Possible answer: The side that is congruent to a side of the other triangle must not be in between the two angles.
2. The congruent side is not between the angles that are congruent to angles in the other triangle.

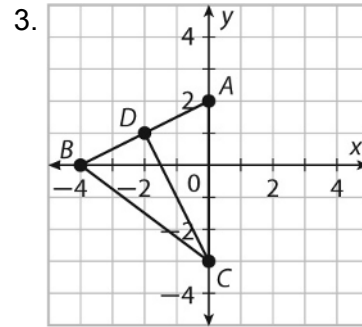
LESSON 6-3

Practice and Problem Solving: A/B

1. Not congruent. No matter what the value of x , $3(2x - 5) \neq 6x - 11$, so \overline{PR} is not congruent to \overline{SU} . Since the hypotenuses are not congruent, the triangles are not congruent.



Congruent. \overline{AB} and \overline{CD} are perpendicular because their slopes are negative reciprocals, so $m\angle ADC = m\angle BDC = 90^\circ$ and both triangles are right triangles. Leg: $\overline{DC} \cong \overline{DC}$ by the reflexive property. Hypotenuse: $AC = BC = 6$, so $\overline{AC} \cong \overline{BC}$.



Congruent; \overline{AB} and \overline{CD} are perpendicular because their slopes are negative reciprocals, so $m\angle ADC = m\angle BDC = 90^\circ$ and both triangles are right triangles. Leg: $\overline{AD} \cong \overline{BD}$ because they both measure $\sqrt{5}$. Hypotenuse: $AC = BC = 5$, so $\overline{AC} \cong \overline{BC}$.

4.

Statements	Reasons
1. $\overline{PQ} \cong \overline{PS}$ and $\overline{PR} \perp \overline{QS}$	1. Given
2. $\angle PRQ$ and $\angle PRS$ are right angles.	2. Perpendicular lines form right angles.
3. $\triangle PRQ$ and $\triangle PRS$ are right triangles.	3. Definition of right triangle
4. $\overline{PR} \cong \overline{PR}$	4. Reflexive Property
5. $\triangle PQR \cong \triangle PSR$	5. HL Congruence Theorem

Practice and Problem Solving: C

1. Knowing one angle, one adjacent side, and the side opposite the angle might not be enough information to draw the triangle. Knowing three angles is insufficient to determine the size of the triangle.