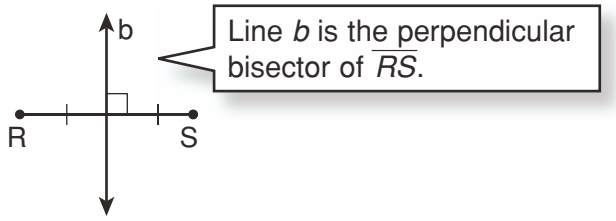
Name _____ Date _____ Class _____

LESSON 3-4

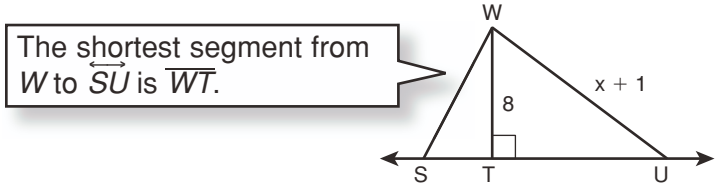
Review for Mastery

Perpendicular Lines

The **perpendicular bisector** of a segment is a line perpendicular to the segment at the segment's midpoint.



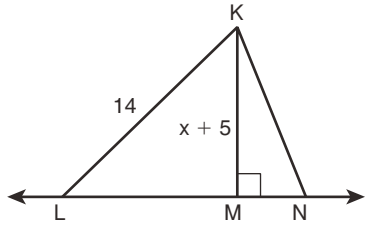
The **distance from a point to a line** is the length of the shortest segment from the point to the line. It is the length of the perpendicular segment that joins them.



You can write and solve an inequality for x.

$WU > WT$	$\overline{WT}$ is the shortest segment.
$x + 1 > 8$	Substitute $x + 1$ for WU and 8 for WT.
$-1 \quad -1$	Subtract 1 from both sides of the equality.
$x > 7$	

Use the figure for Exercises 1 and 2.



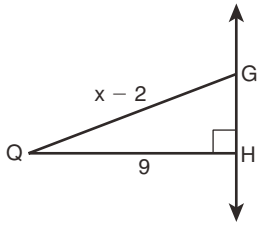
1. Name the shortest segment from point K to $\overleftrightarrow{LN}$.

_____

2. Write and solve an inequality for x.

_____

Use the figure for Exercises 3 and 4.



3. Name the shortest segment from point Q to $\overleftrightarrow{GH}$.

_____

4. Write and solve an inequality for x.

_____

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Name _____ Date _____ Class _____

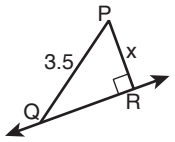
LESSON 3-4

Practice B

Perpendicular Lines

For Exercises 1–4, name the shortest segment from the point to the line and write an inequality for *x*. (*Hint:* One answer is a double inequality.)

1.



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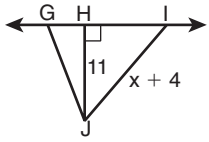
2.



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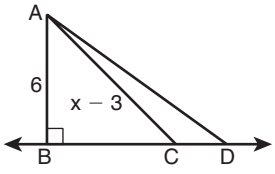
3.



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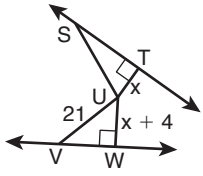
4.



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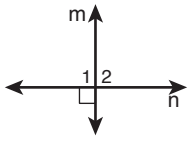
Complete the two-column proof.

5. Given: $m \perp n$

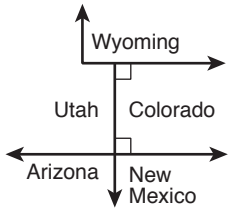
Prove: $\angle 1$ and $\angle 2$ are a linear pair of congruent angles.

Proof:



Statements	Reasons
1. **a.** _____	1. Given
2. **b.** _____	2. Def. of $\perp$
3. $\angle 1 \cong \angle 2$	3. **c.** _____
4. $m\angle 1 + m\angle 2 = 180°$	4. Add. Prop. of $=$
5. **d.** _____	5. Def. of linear pair

6. The Four Corners National Monument is at the intersection of the borders of Arizona, Colorado, New Mexico, and Utah. It is called the four corners because the intersecting borders are perpendicular. If you were to lie down on the intersection, you could be in four states at the same time—the only place in the United States where this is possible. The figure shows the Colorado-Utah border extending north in a straight line until it intersects the Wyoming border at a right angle. Explain why the Colorado-Wyoming border must be parallel to the Colorado–New Mexico border.



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