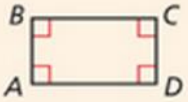
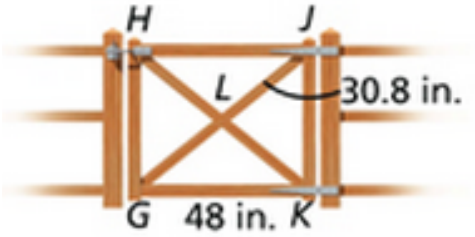
Rectangle Theorem Notes

A type of special _____ is a _____.

A _____ is a quadrilateral with _____ right _____.

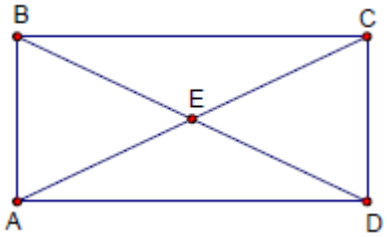
THEOREM	HYPOTHESIS
If a quadrilateral is a rectangle, then it is a parallelogram. (rect. → ▱)	
If a parallelogram is a rectangle, then its diagonals are congruent. (rect. → diags. ≅)	



Carpentry The rectangular gate has diagonal braces. Find each length.

1a. *HJ* **1b.** *HK*

1. In the diagram of rectangle ABCD, diagonals AC and BD intersect at E. If AE = $3x + y$, BE = $4x - 2y$ and CE = 20 , find x and y.



2. In rectangle ABCD, diagonals AC and BD are drawn. If AC = $x^2 + 4x - 23$ and BD = $5x + 33$, find the length of AC.

3. In rectangle QRST, diagonals QS and RT intersect at E. If QE = $3x - 10$ and QS = $5x - 8$, find the length of QS.

4. In rectangle ABCD, diagonal AC = 6x-2 and diagonal BD=4x+2. Find the length of AC.

5. Mr. Harmon is building a shelving unit for his bathroom. He wants the frame of the shelf to be a perfect rectangle. How could he verify this if he doesn't have a way to measure the angles?