LESSON 5-5 The Triangle Inequality

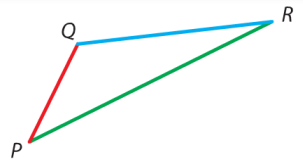
Target:_____

_____

Theorem 5.11 Triangle Inequality Theorem

The sum of the lengths of any two sides of a triangle must be greater than the length of the third side.

Examples $PQ + QR > PR$
$QR + PR > PQ$
$PR + PQ > QR$



Example 1 Identify Possible Triangles Given Side Lengths

Is it possible to form a triangle with the given side lengths? If not, explain why not.

1A. 15 yd, 16 yd, 30 yd

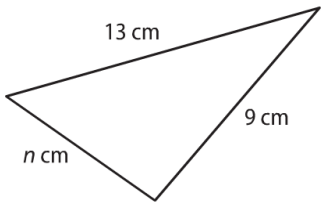
1B. 2 ft, 8 ft, 11 ft

GuidedPractice

2. Which of the following could *not* be the value of n?

F 7 **H** 13

G 10 **J** 22



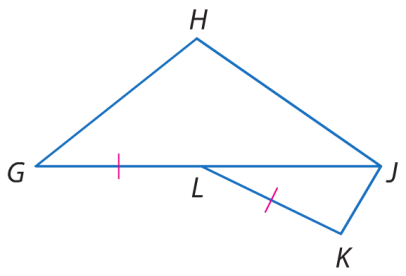
3. If the measures of two sides of a triangle are 9 yards and 17 yards, then the measure of the third side must be greater than _____.

4. Find the range for the measure of the third side of a triangle if two sides measure 9 and 19.

5. If the measures of two sides of a triangle are 12 yards and 8 yards, what is the least possible measure of the third side if the measure is an integer?

GuidedPractice

3. Write a two-column proof.

Given: $GL = LK$

Prove: $JH + GH > JK$