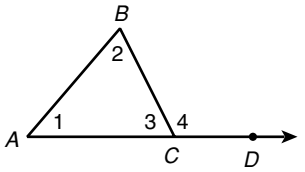
Name _____ Date _____ Class _____

LESSON 5-5

Practice B

Indirect Proof and Inequalities in One Triangle

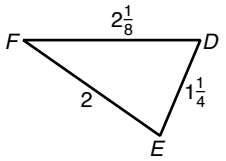
Write an indirect proof that the angle measures of a triangle cannot add to more than 180°.



1. State the assumption that starts the indirect proof.

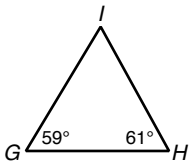
_____

2. Use the Exterior Angle Theorem and the Linear Pair Theorem to write the indirect proof.



3. Write the angles of $\triangle DEF$ in order from smallest to largest.

_____



4. Write the sides of $\triangle GHI$ in order from shortest to longest.

_____

Tell whether a triangle can have sides with the given lengths. If not, explain why not.

5. 8, 8, 16 _____ **6.** 0.5, 0.7, 0.3 _____ **7.** $10\frac{1}{2}$, 4, 14 _____

8. $3x + 2$, x^2, $2x$ when $x = 4$ _____

9. $3x + 2$, x^2, $2x$ when $x = 6$ _____

The lengths of two sides of a triangle are given. Find the range of possible lengths for the third side.

10. 8.2 m, 3.5 m **11.** 298 ft, 177 ft **12.** $3\frac{1}{2}$ mi, 4 mi

_____ _____ _____

13. The annual Cheese Rolling happens in May at Gloucestershire, England. As the name suggests, large, 7–9 pound wheels of cheese are rolled down a steep hill, and people chase after them. The first person to the bottom wins cheese. Renaldo wants to go to the Cheese Rolling. He plans to leave from Atlanta and fly into London (4281 miles). On the return, he will fly back from London to New York City (3470 miles) to visit his aunt. Then Renaldo heads back to Atlanta. Atlanta, New York City, and London do not lie on the same line. Find the range of the total distance Renaldo could travel on his trip.

_____