Name _____ Date _____

Practice — Triangle Inequality Theorem

Triangle Inequality Theorem

The sum of the lengths of any two sides of a triangle is _____ than the length of the third side.

Can these numbers be the length of the sides of a triangle? Show math to prove your answer, using the Triangle Inequality Theorem. Then circle YES or NO.

1. 8, 9, 10

YES NO

2. 1,1, 2

YES NO

3. 6, 9, 8

YES NO

4. 3, 4, 9

YES NO

5. 12, 4, 17

YES NO

6. 8, 7, 2

YES NO

7. 14, 3, 9

YES NO

8. 12, 18, 2

YES NO

9. 3, 2, 1

YES NO

In Exercises 10 – 15, the lengths of two sides of a triangle are given. What are the possible lengths for the third side? Between what two numbers?

10. 8, 5

Between _____

11. 9, 2

Between _____

12. 10, 10

Between _____

13. 4, 13

Between _____

14. 27, 39

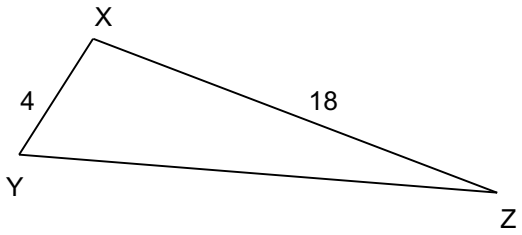
Between _____

15. 15, 6

Between _____

16. Which of the following could be the length of $\overline{YZ}$?

(a) 12
(b) 4
(c) 14
(d) 21



17. Mrs. Barto has a pet rabbit and wants to build a pen for it. She has 3 pieces of lumber: one is 3 ft, one is 7 ft, and the other is 8 ft long. Can she build a closed triangular pen with these three boards (will the boards form a triangle)?

Show your work here:

YES or NO