Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Triangle Inequality Theorem

Decide whether each set of lengths can form a triangle. Then find the strict range for each missing third side.

Section 1: Can these sides form a triangle?

Circle Yes or No. Compare the two shortest sides with the longest side and explain your decision.

1. **Side lengths: 19 in, 9 in, 10 in** **Triangle? Yes / No**

Explain: _____

2. **Side lengths: 27 ft, 8 ft, 11 ft** **Triangle? Yes / No**

Explain: _____

3. **Side lengths: 10 yd, 8 yd, 5 yd** **Triangle? Yes / No**

Explain: _____

4. **Side lengths: 13 mi, 12 mi, 6 mi** **Triangle? Yes / No**

Explain: _____

5. **Side lengths: 4 in, 3 in, 2 in** **Triangle? Yes / No**

Explain: _____

6. **Side lengths: 8 ft, 10 ft, 4 ft** **Triangle? Yes / No**

Explain: _____

7. **Side lengths: 2 yd, 23 yd, 2 yd** **Triangle? Yes / No**

Explain: _____

8. **Side lengths: 3 mi, 12 mi, 12 mi** **Triangle? Yes / No**

Explain: _____

9. **Side lengths: 8 in, 3 in, 10 in** **Triangle? Yes / No**

Explain: _____

10. **Side lengths: 8 ft, 8 ft, 3 ft** **Triangle? Yes / No**

Explain: _____

Triangle inequalities use strict bounds.

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Triangle Inequality Theorem

Decide whether each set of lengths can form a triangle. Then find the strict range for each missing third side.

Section 2: Find the strict range of the third side

Use the absolute difference and the sum of the given sides. Write both strict inequality signs.

11. Two sides are 28 yd and 28 yd. Write the strict range for the third side x.

Given sides: 28 yd, 28 yd

Strict interval: _____

Work: _____

12. Two sides are 25 mi and 21 mi. Write the strict range for the third side x.

Given sides: 25 mi, 21 mi

Strict interval: _____

Work: _____

13. Two sides are 18 in and 23 in. Write the strict range for the third side x.

Given sides: 18 in, 23 in

Strict interval: _____

Work: _____

14. Two sides are 8 ft and 12 ft. Write the strict range for the third side x.

Given sides: 8 ft, 12 ft

Strict interval: _____

Work: _____

15. Two sides are 1 yd and 6 yd. Write the strict range for the third side x.

Given sides: 1 yd, 6 yd

Strict interval: _____

Work: _____

16. Two sides are 28 mi and 7 mi. Write the strict range for the third side x.

Given sides: 28 mi, 7 mi

Strict interval: _____

Work: _____