

**Skills Practice****Triangle Inequality Theorem**

Determine if the three numbers can be measures of the sides of a triangle. Write yes or no. Explain.

1. 6, 7, 8 **yes;**

$6 + 7 > 8,$

$7 + 8 > 6,$

$6 + 8 > 7$

2. 1, 1, 2 **no;**

$1 + 1 \not> 2$

3. 2, 4, 6 **no;**

$2 + 4 \not> 6$

4. 5, 8, 10 **yes;**

$5 + 8 > 10,$

$8 + 10 > 5,$

$5 + 10 > 8$

5. 10, 20, 30 **no;**

$10 + 20 \not> 30$

6. 3, 4, 5 **yes;**

$3 + 4 > 5,$

$4 + 5 > 3,$

$3 + 5 > 4$

7. 3, 5, 7 **yes;**

$3 + 5 > 7,$

$5 + 7 > 3,$

$3 + 7 > 5$

8. 6, 12, 24 **no;**

$6 + 12 \not> 24$

9. 1, 7, 10 **no;**

$1 + 7 \not> 10$

10. 10, 15, 26 **no;**

$10 + 15 \not> 26$

11. 8, 12, 19 **yes;**

$8 + 12 > 19,$

$12 + 19 > 8,$

$8 + 19 > 12$

12. 4, 7, 10 **yes;**

$4 + 7 > 10,$

$7 + 10 > 4,$

$4 + 10 > 7$

Find the range of possible measures for the third side of a triangle with the measures given for two sides.

13. 7, 13  $6 < x < 20$

14. 20, 25  $5 < x < 45$

15. 1, 5  $4 < x < 6$

16. 32, 38  $6 < x < 70$

17. 50, 70  $20 < x < 120$

18. 8, 20  $12 < x < 28$

19. 55, 10  $45 < x < 65$

20. 2, 10  $8 < x < 12$

21. 60, 70  $10 < x < 130$

22. 45, 70  $25 < x < 115$

23. 9, 19  $10 < x < 28$

24. 100, 120  $20 < x < 220$

Name: \_\_\_\_\_

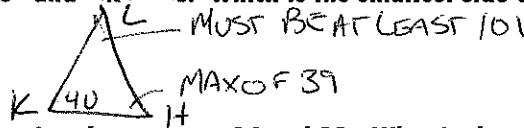
Date \_\_\_\_\_

**Topic: Triangle Inequality Theorem - Worksheet 1**

1. Lengths 13, 11, 10 could represent the measures of the sides of a triangle?

YES  $13+11 > 10$   
 $11+10 > 13$   
 $10+13 > 11$

2. In triangle KLM,  $\angle K = 40^\circ$  and  $\angle K < \angle L$ . Which is the smallest side of the triangle?

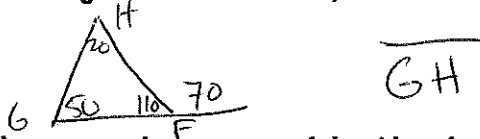


KL IS SMALLEST SIDE

3. Two sides of an isosceles triangle measures 24 and 11. What is the possible value of the third side?

24 OR 11, HOWEVER  $11+11 \not> 24$  SO 24 IS THE SIDE

4. In triangle FGH, an exterior angle at F measures  $70^\circ$ , and  $\angle G = 50^\circ$ . Which is the longest side of the triangle?



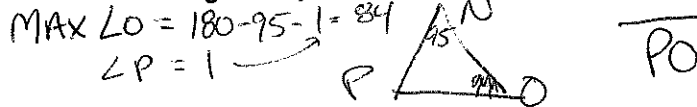
5. Lengths 16, 11, 18 could represent the measures of the sides of a triangle?

$16+11 > 18$      $16+18 > 11$   
 $11+18 > 16$     YES

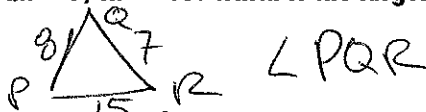
6. In triangle KLM,  $\angle K = 55^\circ$  and  $\angle L = 40^\circ$ . Which is the longest side of the triangle?



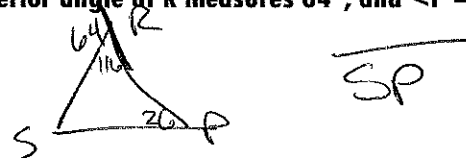
7. In triangle NOP,  $\angle N = 95^\circ$  and  $\angle N > \angle O > \angle P$ . Which is the longest side of the triangle?



8. In  $\triangle PQR$ ,  $PQ = 8$ ,  $QR = 7$ ,  $RP = 15$ . Which is the largest angle?



9. In triangle RPS, an exterior angle at R measures  $64^\circ$ , and  $\angle P = 26^\circ$ . Which is the longest side of the triangle?



10. Two sides of an isosceles triangle measures 16 and 9. What is the possible value of the third side?

16 OR 9     $16+16 > 9$   
 $9+16 > 9$

