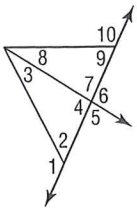
NAME Key DATE _____ PERIOD ____

5-2 Practice

Inequalities and Triangles

Determine which angle has the greatest measure.



1. $\angle 1, \angle 3, \angle 4$

$\angle 1$

2. $\angle 4, \angle 8, \angle 9$

$\angle 4$

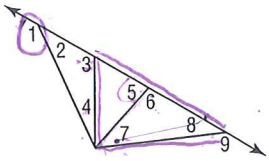
3. $\angle 2, \angle 3, \angle 7$

$\angle 7$

4. $\angle 7, \angle 8, \angle 10$

$\angle 10$

Use the Exterior Angle Inequality Theorem to list all angles that satisfy the stated condition.



5. all angles whose measures are less than $m\angle 1$

$\angle 4, \angle 3, \angle 2, \angle 5, \angle 7, \angle 8$

6. all angles whose measures are less than $m\angle 3$

$\angle 5, \angle 7, \angle 8$

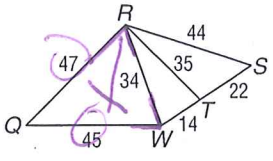
7. all angles whose measures are greater than $m\angle 7$

$\angle 9, \angle 1, \angle 5, \angle 3$

8. all angles whose measures are greater than $m\angle 2$

$\angle 1, \angle 9, \angle 6$

Determine the relationship between the measures of the given angles.



9. $m\angle QRW, m\angle RWQ$

$m\angle QRW < m\angle RWQ$

10. $m\angle RTW, m\angle TWR$

$m\angle RTW < \angle TWR$

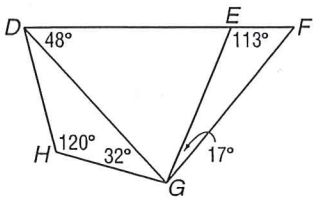
11. $m\angle RST, m\angle TRS$

$m\angle RST > m\angle TRS$

12. $m\angle WQR, m\angle QRW$

$m\angle WQR < m\angle QRW$

Determine the relationship between the lengths of the given sides.



13. $\overline{DH}, \overline{GH}$

$DH > GH$

14. $\overline{DE}, \overline{DG}$

$DE < DG$

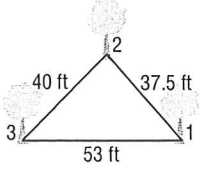
15. $\overline{EG}, \overline{FG}$

$EG < FG$

16. $\overline{DE}, \overline{EG}$

$DE > EG$

17. SPORTS The figure shows the position of three trees on one part of a Frisbee™ course. At which tree position is the angle between the trees the greatest?



$\angle 2$

NAME Key DATE _____ PERIOD ____

5-4 Practice

The Triangle Inequality

Determine whether the given measures can be the lengths of the sides of a triangle. Write *yes* or *no*.

1. 9, 12, 18 yes
2. 8, 9, 17 NO
3. 14, 14, 19 yes
4. 23, 26, 50 NO
5. 32, 41, 63 yes
6. 2.7, 3.1, 4.3 yes
7. 0.7, 1.4, 2.1 NO
8. 12.3, 13.9, 25.2 yes

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

9. 6 and 19
$13 < n < 25$
10. 7 and 29
$22 < n < 36$
11. 13 and 27
$14 < n < 40$
12. 18 and 23
$5 < n < 41$
13. 25 and 38
$13 < n < 63$
14. 31 and 39
$8 < n < 70$
15. 42 and 6
$36 < n < 48$
16. 54 and 7
$47 < n < 61$

ALGEBRA Determine whether the given coordinates are the vertices of a triangle. Explain.

17. $R(1, 3), S(4, 0), T(10, -6)$ NO
$RS = \sqrt{18} = 4.24$
$ST = \sqrt{72} = 8.48$
$RT = \sqrt{162} = 12.72$
$RS + ST = RT$
X
18. $W(2, 6), X(1, 6), Y(4, 2)$
19. $P(-3, 2), L(1, 1), M(9, -1)$
20. $B(1, 1), C(6, 5), D(4, -1)$

21. **GARDENING** Ha Poong has 4 lengths of wood from which he plans to make a border for a triangular-shaped herb garden. The lengths of the wood borders are 8 inches, 10 inches, 12 inches, and 18 inches. How many different triangular borders can Ha Poong make?