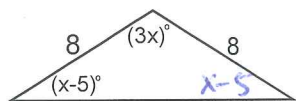


A

Solve for x .

$$5x - 10 = 180$$

$$5x = 190$$

$$x = 38$$

B

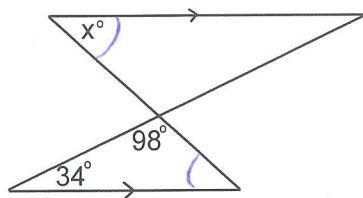
Find the measure of each side of equilateral $\triangle RST$ with $RS = 2x + 2$, $ST = 3x$, and $TR = 5x - 4$.

$$2x + 2 = 3x$$

$$2 = x$$

$$6$$

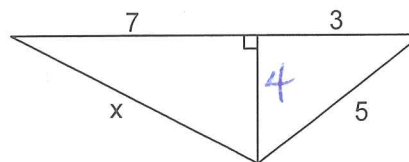
C

Find x .

$$34 + 98 + x = 180$$

$$x = 48$$

D

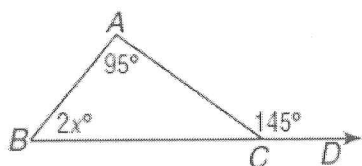
Find x . Round to the nearest tenth.

$$4^2 + 7^2 = x^2$$

$$65 = x^2$$

$$x = 8.1$$

E

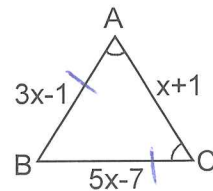
Find x .

$$2x + 95 = 145$$

$$2x = 50$$

$$x = 25$$

F

Find the value of x .

$$3x - 1 = 5x - 7$$

$$6 = 2x$$

$$x = 3$$

G

Can you form a triangle with the following sides? If so, classify the triangle as acute, obtuse, or right. If not, explain why.

4, 8, 2

$$4 + 2 > 8$$

$$6 > 8$$

no

H

Can you form a triangle with the following sides? If so, classify the triangle as acute, obtuse, or right. If not, explain why.

18, 12, 14

$$12 + 14 > 18$$

$$26 > 18 \text{ yes}$$

$$12^2 + 14^2 ? 18^2$$

$$340 > 324$$

Acute

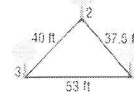
I

You are given sides of length 10 and 15 in. What two numbers must the 3rd side be in between if you want to form a triangle?

$$5 < x < 25$$

J

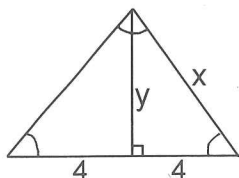
SPORTS The figure shows the position of three trees on one part of a Frisbee[™] course. At which tree position is the angle between the trees the greatest?



$$\angle 2$$

K

Find the sum of x and y .



$$x = 8$$

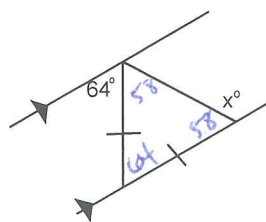
$$4^2 + y^2 = 8^2$$

$$y^2 = 48$$

$$y = 6.9$$

14.9

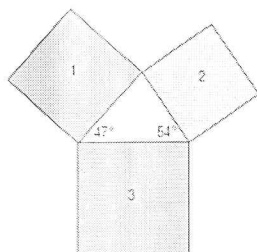
L

Solve for x 

$$x = 122$$

M

Which square has the largest perimeter?

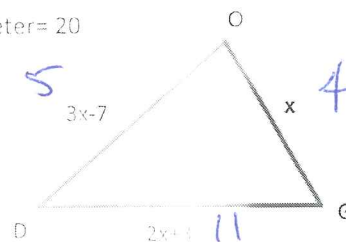


3

N

Name the angles in order from biggest to smallest. Use inequalities.

Perimeter = 20



$$x + 3x - 7 + 2x + 1 + x = 20$$

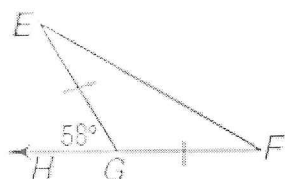
$$6x = 24$$

$$x = 4$$

$$\angle O > \angle G < \angle D$$

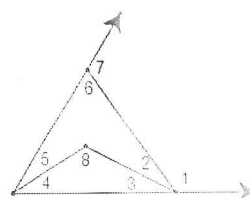
O

Find the measure of angle GEF



29

P

Name all angles that measure less than $m\angle 1$ aName all angles that measure greater than $m\angle 6$ bName all angles that measure less than $m\angle 7$ ca) $\angle 4, \angle 5, \angle 6$ b) $\angle 1$ c) $\angle 2, \angle 3, \angle 4, \angle 5$

Chapter 4 – Triangles

Triangle & Exterior Angle Inequalities and Hinge Theorem

Name: KEY

Date: _____ Class: _____

Circle the correct answer.

1. Name the longest side of $\triangle ABC$.

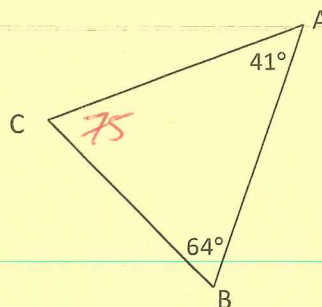
[A] AB

[B] AC

[C] BC

[D] AB & AC are both the longest

[E] Not Enough Info



2. Compare GH to GF

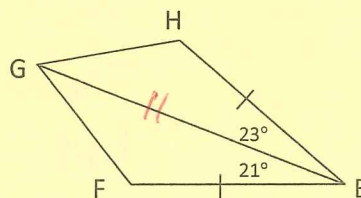
[A] $GH = GF$

[B] $GH \leq GF$

[C] $GH \geq GF$

[D] $GH < GF$

[E] $GH > GF$



3. Which of the following cannot be sides of a triangle?

[A] 4, 5, 2π

$4 + 5 > 6.28$ yes

[B] 5π , 6π , 7π

$5 + 6 > 7$ yes

[C] $\sqrt{2}$, $\sqrt{3}$, $\sqrt{4}$

$3.14 > 2$ yes

[D] π , $\sqrt{5}$, 5

$5.37 > 5$ yes

[E] 1.1, 2.2, 3.3

$1.1 + 2.2 > 3.3$ no

4. Find the possible values for $\angle 2$

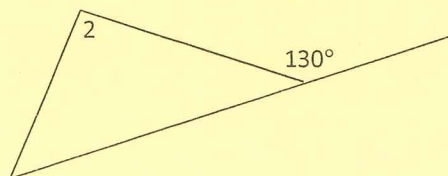
[A] $130 < \angle 2 < 180$

[B] $50 < \angle 2 < 180$

[C] $50 < \angle 2 < 130$

[D] $0 < \angle 2 < 130$

[E] $0 < \angle 2 < 50$



5. If there are two segments with lengths of 7.5 & 8.9 respectively, what is the range of possibilities for the length of the third side?

[A] $7.5 < x < 8.9$

[B] $7.5 < x < 16.4$

[C] $1.4 < x < 8.9$

[D] $1.4 < x < 16.4$

[E] $1.4 < x < 7.5$

Use the figure at the right to answer questions 6-8.

6. Find $m\angle KML$

169°

7. Find $m\angle J$

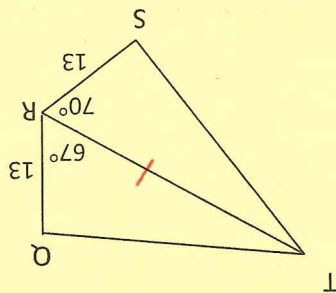
76°

8. Name the longest segment.

LM

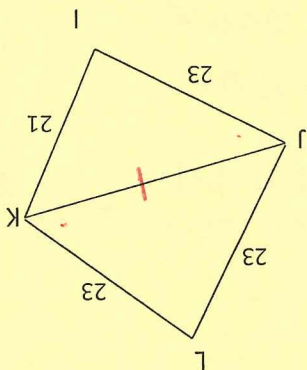
Fill in the o with the correct inequality symbol.

9.



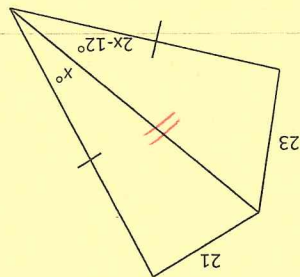
$\angle TS$

10.



$\angle LJK$

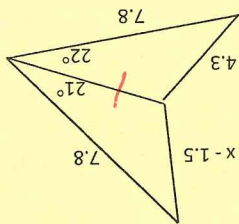
11.



$2x - 12 > x$

$x > 12$

12.



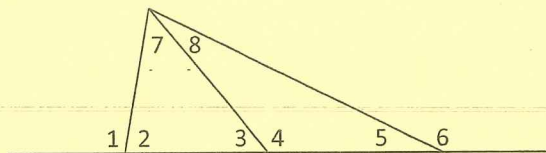
$x - 1.5 < 4.3$
 $x < 5.8$
 $x - 1.5 > 0$
 $x > 1.5$

$1.5 < x < 5.8$

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

13. All angles whose measure is less than $m\angle 1$

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

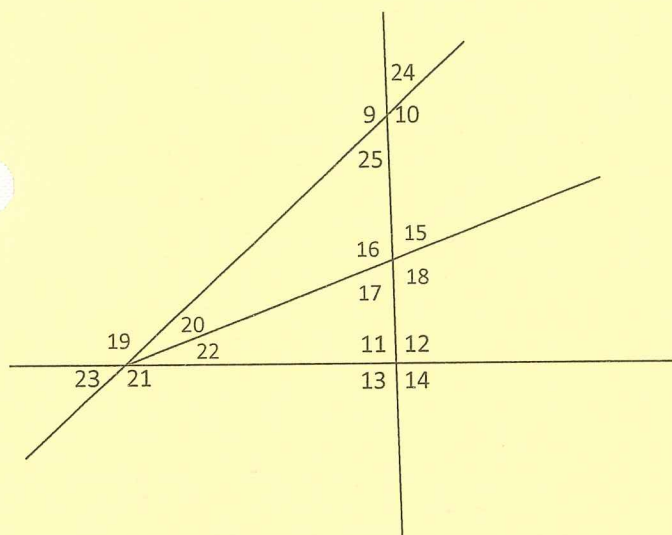


14. All angles whose measure is less than $m\angle 4$

$\angle 7, \angle 2$

15. All angles whose measure is greater than $m\angle 5$

$\angle 3, \angle 1$



16. All angles whose measure is greater than $m\angle 25$

$\angle 13, \angle 17, \angle 19, \angle 15, \angle 12, \angle 21$

17. All angles whose measure is less than $m\angle 17$

$\angle 20, \angle 25, \angle 24$

18. All angles whose measure is less than $m\angle 12$

$\angle 22, \angle 17, \angle 20, \angle 25, \angle 23, \angle 15, \angle 24$

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

19. 6 & 10

20. 34 & 45

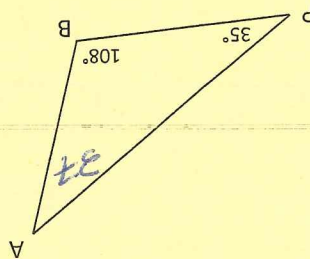
21. 9 and 13.2

$4 < x < 16$

$11 < x < 79$

$4.2 < x < 22.2$

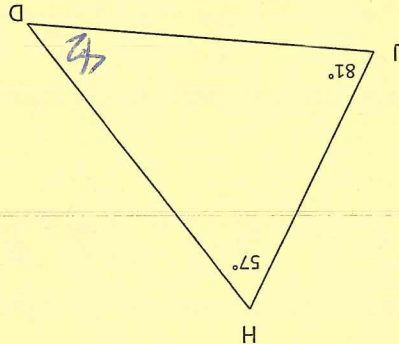
List the sides of the triangle in order from smallest to largest.



22.

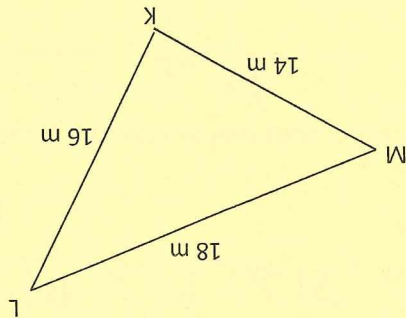
AB, PB, AP

23.



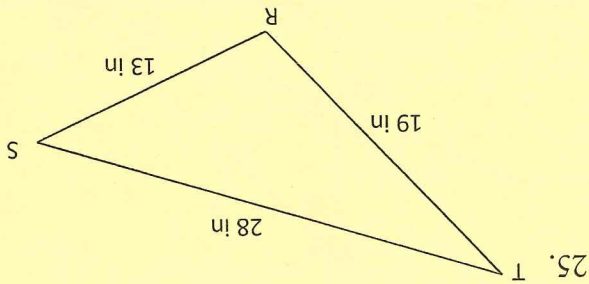
JH, JD, HD

List the angles of the triangle in order from smallest to largest.



24.

LM, MK, KL



25.

RT, RS, ST

Can the following groups of segment lengths create a triangle?

26. 4, 5 & 9 $4+5 > 9$ no

28. 45, 58 & 101 $45+58 > 101$ yes

27. 13, 29 & 18 $13+18 > 29$ yes

29. 34, 19 & 55 $19+34 > 55$ no

Given the range of the 3rd side of the triangle, find the lengths of the other 2 sides.

30. $14 < x < 30$
 $x - y = 14$
 $x + y = 30$
 $2x = 44$
 $x = 22$
 $y = 8$

31. $25 < x < 42$
 $x - y = 25$
 $x + y = 42$
 $2x = 67$
 $x = 33.5$
 $y = 8.5$