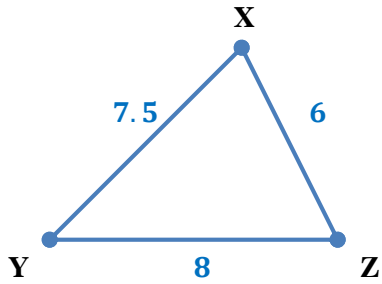


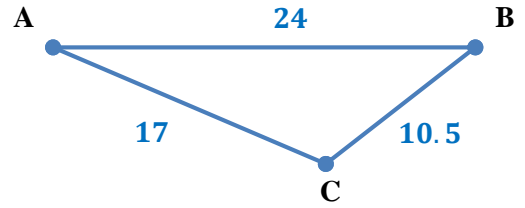
# INEQUALITIES IN ONE TRIANGLE Bell Work

Write the angles in order from smallest to largest.

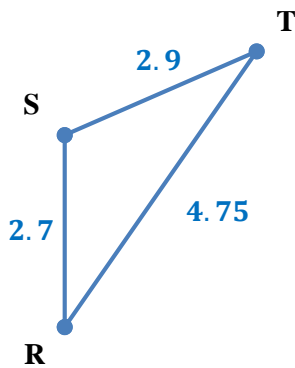
1.



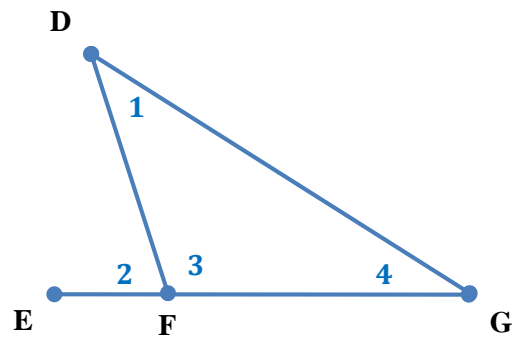
2.



3.

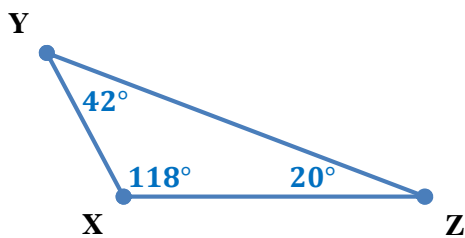


4.

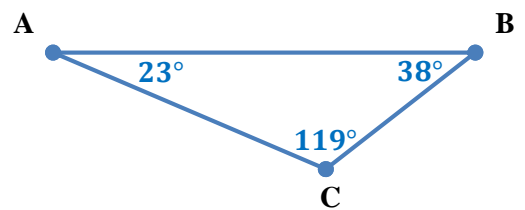


Write the sides in order from shortest to longest.

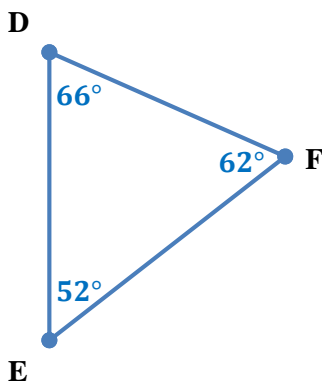
5.



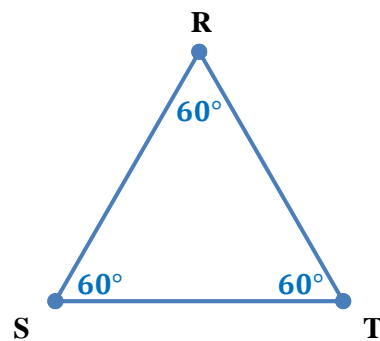
6.



7.



8.



Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## INEQUALITIES IN ONE TRIANGLE Bell Work

Determine whether a triangle can have sides with the given lengths.

9. 28, 34, 39

10. 6, 7, 11

11. 35, 120, 125

12. 3, 6, 9

The lengths of two sides of a triangle are given. Find the range of possible lengths for the third side.

13. 28 *in*, 38 *in*

14. 3 *ft*, 5 *ft*

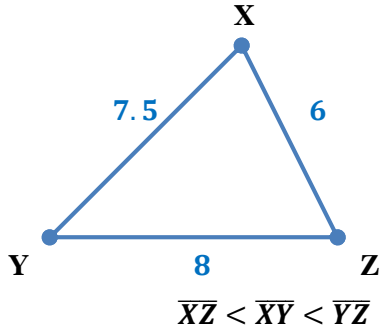
15. 9.2 *cm*, 3.8 *cm*

# INEQUALITIES IN ONE TRIANGLE Bell Work

**ANSWER**

Write the angles in order from smallest to largest.

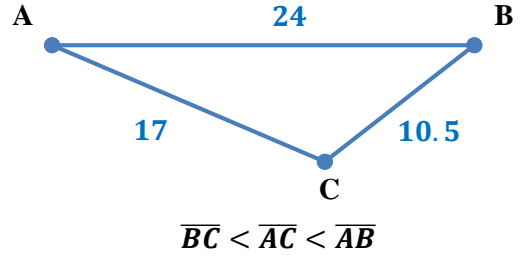
1.



$$\overline{XZ} < \overline{XY} < \overline{YZ}$$

$$m\angle Y < m\angle Z < m\angle X$$

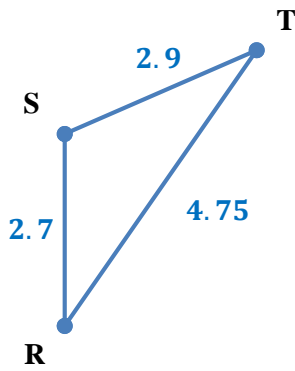
2.



$$\overline{BC} < \overline{AC} < \overline{AB}$$

$$m\angle A < m\angle B < m\angle C$$

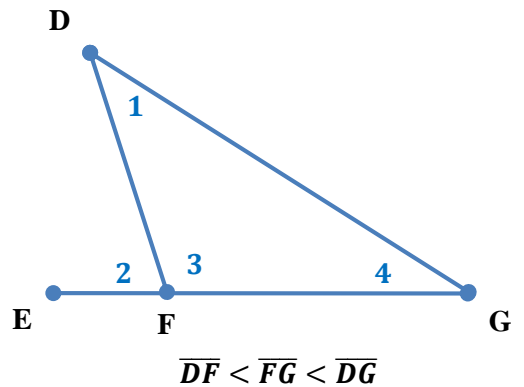
3.



$$\overline{SR} < \overline{ST} < \overline{TR}$$

$$m\angle T < m\angle R < m\angle S$$

4.

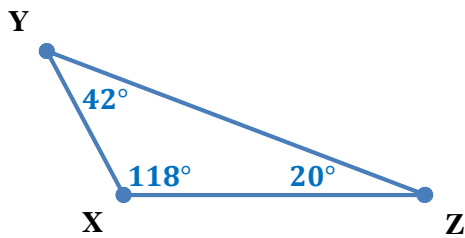


$$\overline{DF} < \overline{FG} < \overline{DG}$$

$$m\angle 4 < m\angle 1 < m\angle 3 < m\angle 2$$

Write the sides in order from shortest to longest.

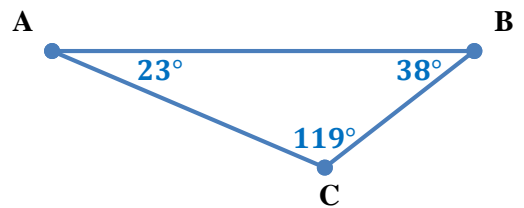
5.



$$m\angle Z < m\angle Y < m\angle X$$

$$\overline{YX} < \overline{XZ} < \overline{YZ}$$

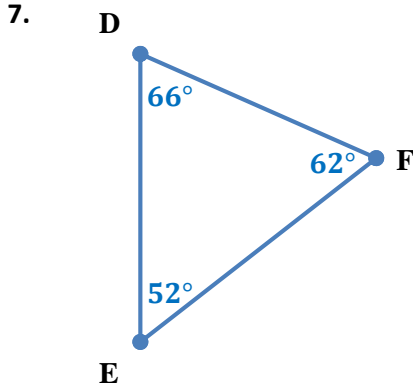
6.



$$m\angle A < m\angle B < m\angle C$$

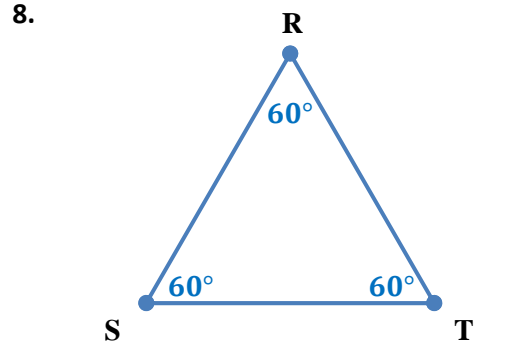
$$\overline{BC} < \overline{AC} < \overline{BA}$$

# INEQUALITIES IN ONE TRIANGLE Bell Work



$$m\angle E < m\angle F < m\angle D$$

$$\overline{DF} < \overline{DE} < \overline{EF}$$



$$m\angle R = m\angle S = m\angle T$$

$$\overline{ST} = \overline{RT} = \overline{RS}$$

Determine whether a triangle can have sides with the given lengths.

9. 28, 34, 39  
**TRIANGLE**

$$28 + 34 > 39 \quad 34 + 39 > 28 \quad 39 + 28 > 34$$

$$62 > 39 \quad 37 > 28 \quad 67 > 34$$

10. 6, 7, 11  
**NOT A TRIANGLE**

$$6 + 7 > 11 \quad 7 + 11 > 6 \quad 11 + 6 > 7$$

$$13 > 11 \quad 18 > 6 \quad 7 > 7$$

11. 35, 120, 125  
**TRIANGLE**

$$35 + 120 > 125 \quad 120 + 125 > 35 \quad 125 + 35 > 120$$

$$155 > 125 \quad 245 > 35 \quad 160 > 120$$

12. 3, 6, 9  
**NOT A TRIANGLE**

$$3 + 6 > 9 \quad 6 + 9 > 3 \quad 9 + 3 > 6$$

$$9 > 9 \quad 16 > 3 \quad 12 > 6$$

The lengths of two sides of a triangle are given. Find the range of possible lengths for the third side.

13. 28 in, 38 in  
**10 in < x < 66 in**

$$28 + 38 > x \quad 38 + x > 28 \quad x + 28 > 38$$

$$66 > x \quad x > 28 - 38 \quad x > 38 - 28$$

$$x > -10 \quad x > 10$$

14. 3 ft, 5 ft  
**2 ft < x < 8 ft**

$$3 + 5 > x \quad 5 + x > 3 \quad x + 3 > 5$$

$$8 > x \quad x > 3 - 5 \quad x > 5 - 3$$

$$x > -2 \quad x > 2$$

## INEQUALITIES IN ONE TRIANGLE Bell Work

15. 9.2 cm, 3.8 cm  
 **$5.4 \text{ cm} < x < 13 \text{ cm}$**

$$\begin{array}{l} 9.2 + 3.8 > x \quad 3.8 + x > 9.2 \quad x + 9.2 > 3.8 \\ \mathbf{13 > x} \quad x > 9.2 - 3.8 \quad x > 3.8 - 9.2 \\ \quad \mathbf{x > 5.4} \quad \mathbf{x > -5.4} \end{array}$$