NAME:_____

1. Is it possible for a triangle to have sides with the given lengths?
    19 cm, 13 cm, 14 cm

2. Is it possible for a triangle to have sides with the given lengths?
    9 cm, 9 cm, 9 cm

3. Which of these lengths could be the sides of a triangle?

    [A] 15 cm, 7 cm, 23 cm   [B] 5 cm, 9 cm, 13 cm   [C] 8 cm, 5 cm, 13 cm   [D] 6 cm, 15 cm, 23 cm

4. Which of these lengths could be the sides of a triangle?

    [A] 10 cm, 7 cm, 16 cm   [B] 6 cm, 10 cm, 16 cm

    [C] 14 cm, 4 cm, 19 cm   [D] 3 cm, 14 cm, 19 cm

5. The measures of two sides of a triangle are 11 and 15. Use an inequality to express the range of the
    measure of the third side, m.

    [A] $4 < m < 26$ [B] $11 < m < 26$ [C] $0 < m < 10$ [D] $1 < m < 17$

NAME:_____

6. The measures of two sides of a triangle are 12 and 13. Use an inequality to express the range of the measure of the third side, m.

   [A] $1 < m < 15$ [B] $1 < m < 25$ [C] $12 < m < 25$ [D] $0 < m < 11$

7. The measures of two sides of a triangle are 8 and 10. Use an inequality to express the range of the measure of the third side, m.

8. The measures of two sides of a triangle are 9 and 15. Use an inequality to express the range of the measure of the third side, m.

9. The lengths of the sides of a triangle are 8 and 12. The length of the third side must be between what two numbers? Repeat with other side lengths and write a generalization for sides of lengths a and b, where $b > a$.

10. Elma wants to climb Miller's Peak, but she needs to go to Sutter Spring to get water and then will hike to Miller's Peak from there. Will she have to hike farther than 6 mi? Explain.
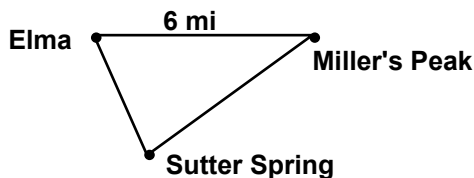
[1] yes

[2] yes

[3] B

[4] A

[5] A

[6] B

[7] $2 < m < 18$

[8] $6 < m < 24$

[9] Between 4 and 20; between $b - a$ and $b + a$ (if the third side is c, we have $a + b > c$ and $a + c > b$, which leads to the inequality $b - a < c < a + b$.)

[10] Yes, the sum of the lengths of any 2 sides of a triangle is greater than the length of the third side.