Finding the equation of the circle is important!

1. A circle has a radius of 2 and a center of (2, -3). Will the following points lie on the circle?

   a. (2, -5) b. (3, -1)

2. Casey's dartboard is a circle centered at the origin with a radius of 8 inches. He throws 3 darts:

   - The first dart hits $(-3, 5)$
   - The second dart hits $(4, 8)$
   - The third dart hits $\left(2\sqrt{5}, 2\sqrt{11}\right)$

   Are his darts inside, outside, or on the board?

3. The new Georgia Dome is being built in the region w/ equation:

$$x^2 + y^2 - 6x + 20y - 39{,}891 = 0$$

Several churches in the area are protesting that the church might interfere with their building:

Mount Vernon Baptist is located at: $(100, 105)$

Friendship Baptist Church is located at: $(-174, -58)$

(a) If the churches lie within the area of the new stadium, what should the Falcons do?

(b) How much would be a fair price?

4. The Space Race in the 1960's between The Soviets and The Americans was a race to see who could get a spacecraft to the moon first. The moon has a 2-dimensional region of:

$$x^2 + y^2 + 882x - 166y + 90{,}345 = 0$$

Russia shoots a rocket that lands at: $(-100, 80)$

USA shoots a rocket that lands at: $(-400, -200)$

Which country "won" the space race (landed on the moon)?

5. A furniture store (at the origin) advertises free delivery within a 50 mile radius from the store. If a customer lives 28 miles east and 41 miles north of the store, does the customer qualify for free delivery?

(a) What if they lived 30 miles west and 41 miles south?

(b) What about 50 miles west?

6. Clowns are roaming around different areas of Acworth. One clown is at $x^2 + 6x + y^2 - 31 = 0$

   And the other clown is roaming a center of $(-2, -2)$ with a radius of 4 miles.

Your house is at (6, 0) Your friends house is at (3, -3) Coach Harrison's house is at (2.3, 4.1)

Will anyone be attacked by clowns?