

Name _____

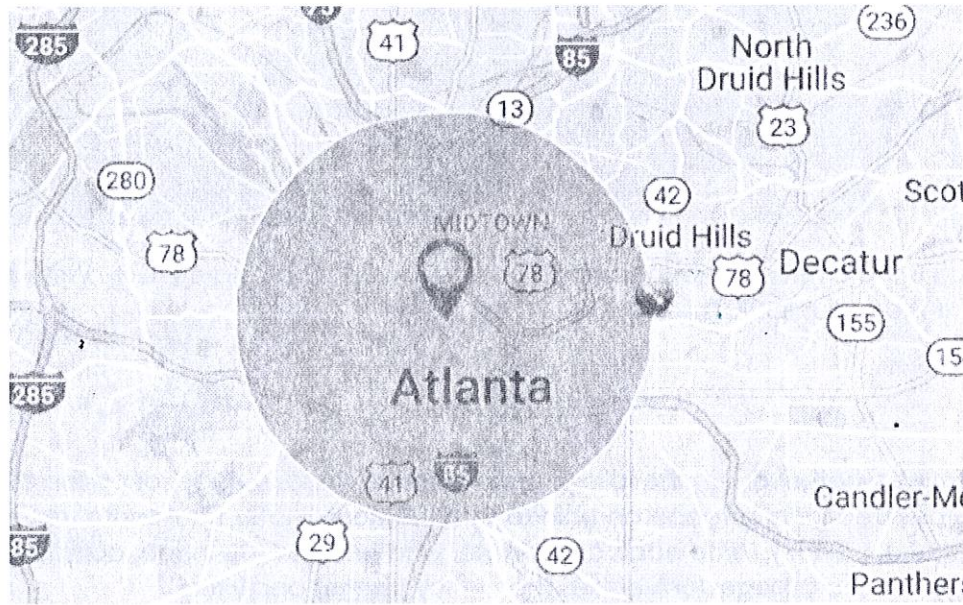
Partner's Name _____

Key

Circle Word Problems

For today, you and your partner are looking at several circles that surround different locations. Answer the following questions below.

1. A family from out of state comes to visit Atlanta for a vacation. They want to go to certain places around where they are staying, but hope to not drive over a 3 mile radius. They are staying near the Georgia Aquarium, and would like to go to the Botanical Gardens, Little Five points, and Zoo Atlanta. Answer questions 1-2 and figure out what stops they can and cannot make.



Equation of circle $(x-h)^2 + (y-k)^2 = r^2$

A. The Georgia Aquarium is in the center of the shaded circle and has the coordinates (2, 3). The radius of this circle is 3 miles. Write the equation for this circle? Center $r=3$

$$(x-2)^2 + (y-3)^2 = 3^2$$

$$(x-2)^2 + (y-3)^2 = 9$$

B. Determine whether or not the following locations are inside, outside or on the edge of the circle. Circle the places that the Smith family can visit

- a. Atlanta Botanical Gardens (4, 5)
- b. Zoo Atlanta (3, 1)
- c. Little Five Points (5, 3)

- a. inside
- b. inside
- c. on the edge

$$(4-2)^2 + (5-3)^2 = 9$$

$$4 + 4 = 8 < 9$$

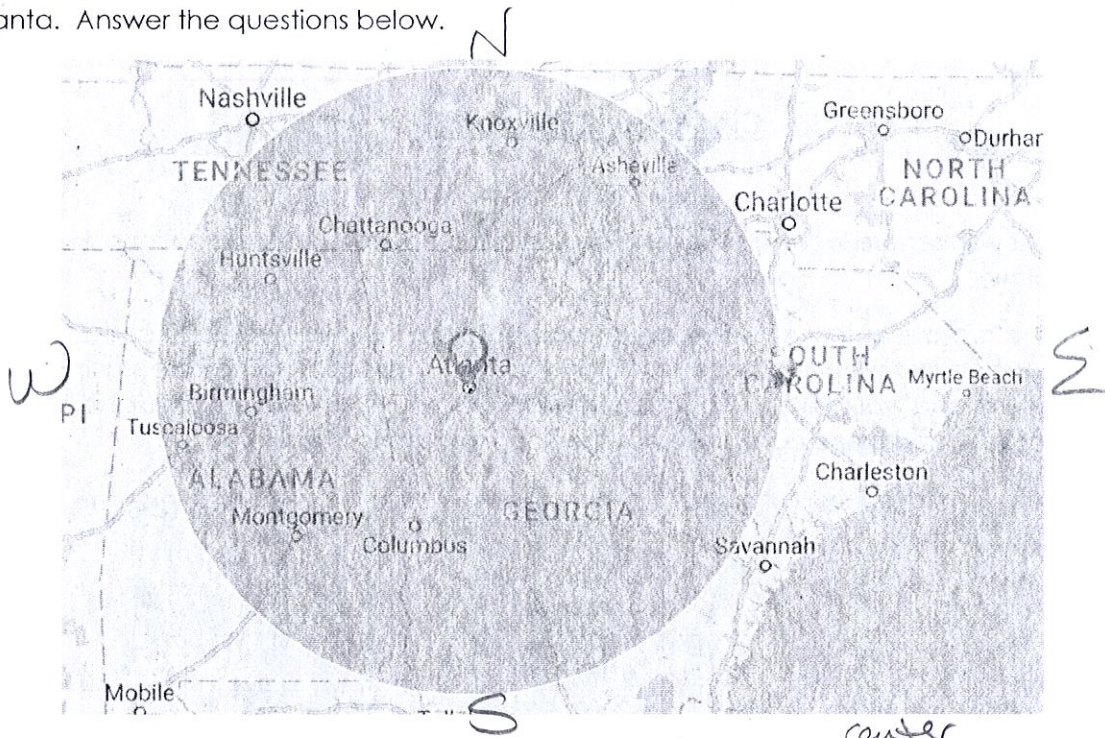
$$(5-2)^2 + (3-3)^2 = 9$$

$$9 + 0 = 9$$

$$(3-2)^2 + (1-3)^2 = 9$$

$$1 + 4 = 5 < 9$$

2. Jenny's parents have decided that she can apply for any college that is within a 150 mile radius from Atlanta. Answer the questions below.



- a. Atlanta is the center of the shaded circle and its coordinates are $(-1, 3)$. Write the equation of the circle if the radius is 150 miles. $r = 150$

$$(x - (-1))^2 + (y - 3)^2 = 150^2$$

$$(x + 1)^2 + (y - 3)^2 = 22,500$$

- b. Determine whether or not the following colleges lie inside, outside, or on the edge of the circle by using the directional mileage combined with the coordinates for Atlanta (remember Atlanta is the center of our circle). Write each coordinate, whether they are inside, outside, or on the circle, and finally circle the colleges/universities that Jenny **cannot** apply for.

a. Troy University, Alabama S93 W103	$(-103, -93)$	a. <u>inside</u>
b. The University of Alabama S38 W182	$(-182, -38)$	b. <u>outside</u>
c. Lee University, Tennessee N96 W27	$(-27, 96)$	c. <u>inside</u>
d. Valdosta State University S200 E64	$(64, -200)$	d. <u>outside</u>
e. West Carolina University N123 E89	$(89, 123)$	e. <u>On the circle</u>
f. UNC Chapel Hill E302 N153	$(302, 153)$	f. <u>outside</u>
g. Birmingham Southern Col. W141 S18	$(-141, -18)$	g. <u>inside</u>
h. The Citadel E253 S64	$(253, -64)$	h. <u>outside</u>