

Name: \_\_\_\_\_

1. (20 points) Find the center and radius of a circle with the following equation. Show all work.

$$x^2 + y^2 - 10x - 4y + 24 = 0$$

2. Let  $A(1, -3)$  and  $B(-9, -6)$  be the endpoints of the diameter of a circle. Show all work for each of the following.

(a) (3 points) Find the **center** of the circle.

(b) (3 points) Find the **radius** of the circle.

(c) (3 points) Find the **equation** of the circle.

3. Graph the equation  $y = x^3 + 2$  on the viewing rectangle  $[-2, 3]$  by  $[-2, 5]$ .

(a) (3 points) Sketch the graph as you see it on the calculator.

(b) (2 points) Using your calculator, approximate the x-intercept to two decimal places.