

In class work 3 has questions 1 through 3 with a total of 15 points. This assignment is due at the end of the class period (9:55 AM).

- 5 1. Find the *center* and *radius* of the circle

$$x^2 - 2x + y^2 + 2y = 4.$$

Do this by matching to the general equation of a circle centered at  $(x = h, y = k)$  and radius  $r$

$$x^2 - 2hx + h^2 + y^2 - 2ky + k^2 = r^2.$$

- 5 2. The number of lawns  $L$  a work crew can mow in a day varies jointly with the number of people  $N$  in the crew and with the time  $T$  they work in a day.

Given that  $L = 8$  when  $N = 5$  and  $T = 6$ , find  $L$  when  $N = 8$  and  $T = 10$ .

3. The corpulence index CI is an alternative to the body mass index BMI. The CI thought to be more based on physiology than is the BMI. The CI varies jointly with the weight  $w$  and with the inverse *cube* of the height  $L$ . Thus for some number  $k$ , we have

$$\text{CI} = k \frac{w}{L^3}$$

5

- (a) Usan Bolt, a world record holder for the 100 meter dash, is 77 inches tall and weighs 207 pounds. Given that Usan Bolt's CI is 12.4, find the numerical value of the proportionality constant  $k$ .

- (b) Florence Griffith Joyner, a world record holder for the 100 meter dash, is 67 inches tall and weighs 126 pounds. Find the CI of Florence Griffith Joyner.