

Math 32, Spring 2010, Section 101
Worksheet 3

Work through the following problems in groups of about four. Take turns writing; everyone should get a chance to write for some of the problems. It's more important to understand the problems than to do all of them.

1. Find the center and radius of the circles determined by the following equations.

(a) $(x - 1)^2 + (y + 2)^2 = 9$

(b) $x^2 + y^2 - 10x + 2y + 17 = 0$

2. If there are any, find the y -intercept(s) of the circles from question 1. Also, determine if the point $(4, -2)$ is on each circle.

3. How many (real) solutions do the following quadratic equations have? (Hint: you don't have to do all of the work to find them.)

(a) $2x^2 - 10x + 5 = 0$

(c) $t^2 - 2t = -1$

(b) $\sqrt{2}y^2 + \sqrt{3}y + 1 = 0$

4. Solve the following equations. When appropriate, check for extraneous solutions.

(a) $|x - 4| - 5 = 2$

(c) $8t^{-2} - 17t^{-1} + 2 = 0$

(b) $x^4 - 5x^2 = -6$

(d) $\sqrt{2 - x} - 10 = x$

5. Find the value(s) of k such that $kx^2 + kx + 1 = 0$ has exactly one real solution.