San José State University Fall 2015

Math-8: College Algebra Section 03: MW noon-1:15pm Section 05: MW 4:30-5:45pm

Exam 2

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \quad \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} \qquad y = mx + b \qquad y - y_1 = m(x - x_1)$$

$$(x - h)^2 + (y - k)^2 = r^2 \qquad y = a(x - h)^2 + k$$

You have two dogs that just don't like each other. You tie each dog to a stake in your backyard. Fido (dog 1) can cover a circular area bordered by the equation:

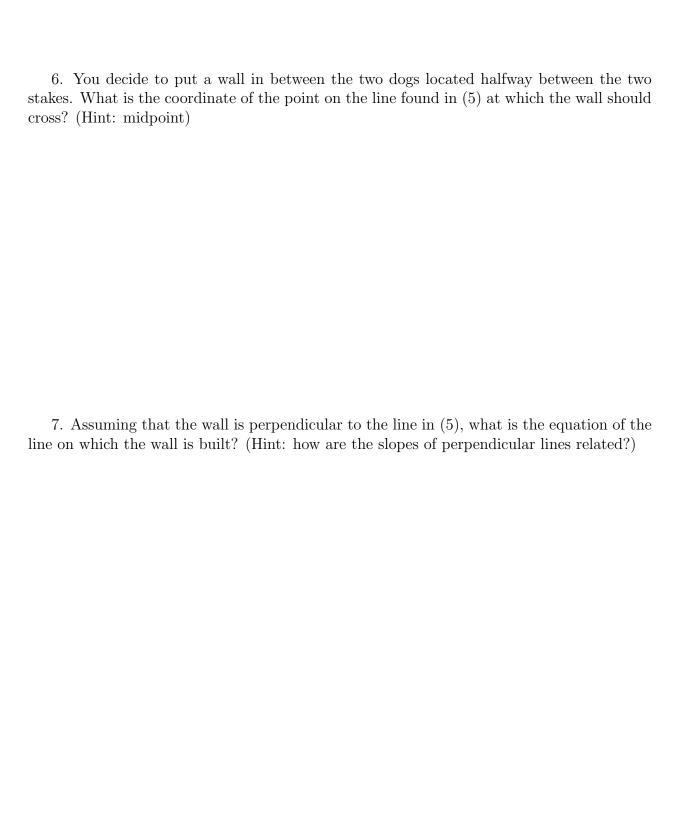
$$(x+2)^2 + (y+2)^2 = 4$$

Fluffy (dog 2) can cover a circular area bordered by the equation:

$$x^2 + y^2 - 8x - 2y + 8 = 0$$

- 1. What are the coordinates of Fido's stake (i.e., the center of his circle)?
- 2. What are the coordinates of Fluffy's stake?

3. What is the distance between the two stakes?
4. Do you need to worry about Fido and Fluffy fighting? Why? (Hint: how do the two radii compare to the distance?)
5. What is the equation of the line connecting Fido's and Fluffy's stakes? Please answer in point-slope form.



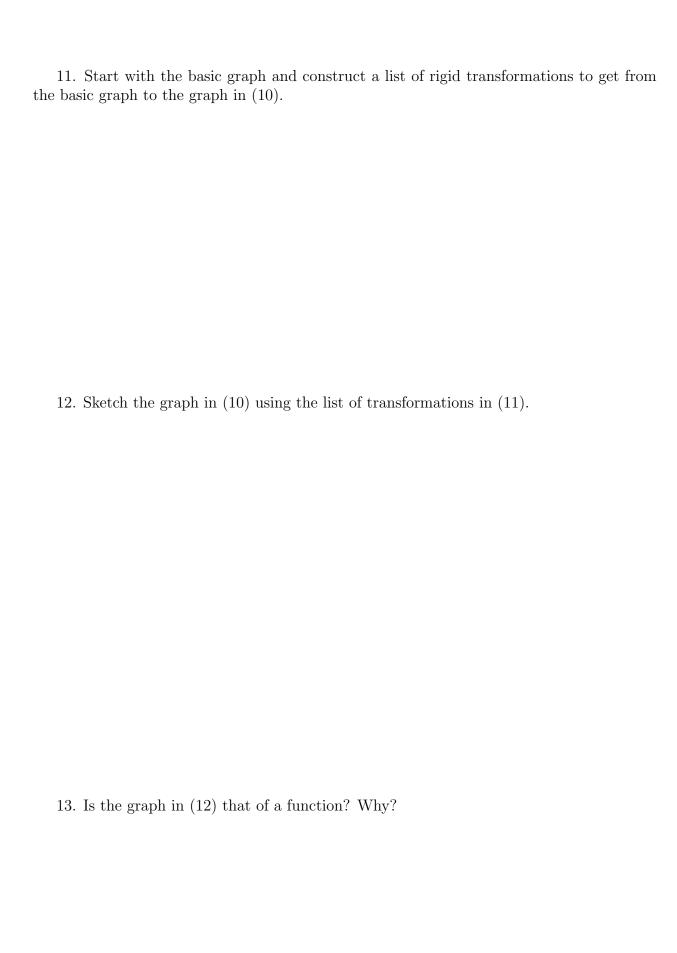
Consider the equation:

$$y = -x^2 + 4x - 1$$

8. What are the x-intercept(s) (if any)?

9. What are the y-intercept(s) (if any)?

 $10.\ \mathrm{Put}$ the equation in standard form.



14	. What is the implied range of the graph?
15	. What is the axis of symmetry of the graph?
16	. Over what interval(s) is the graph increasing (if any)?
17	. Identify any maxima or minima.

18. Solve for x. Give the result in *interval notation*.

$$2|x - 5| + 10 > 14$$

- 19. You will awarded up to 5 points from your week 9 homework.
- 20. Determine the domain for the following:

$$y = \frac{(x+1)\sqrt[3]{x+2}}{(x-5)\sqrt{(x^2-16)(x-1)}}$$