Math 195 Quiz 7A
March 11, 2019

Name: _____

Instructions: No calculators! Answer <u>all</u> problems in the space provided! Do your rough work on scrap paper.

1. Complete the following rules:

(a) $x^n \cdot x^m =$ _____ (b) $x^{-a} =$ _____ (c) $x^{m/n} =$ _____ (d) $\frac{x^n}{x^m} =$ _____

(e) $x^2 - y^2 =$ _____ (f) $x^3 - y^3 =$ _____

2. Let (x_1, y_1) and (x_2, y_2) be two points in the Cartesian plane. State a formula that gives the:

(a) Distance d between the two points: $d =$ _____

(b) The midpoint between the two points: $M =$ _____

3. Suppose $(-2,3)$ and $(4,1)$ lie on the diameter of a circle. For this circle, find:

(a) Its center: _____

(b) Its radius: _____

(c) Its equation: _____

4. The equation $2x^2 + 2y^2 - 8x + 12y - 4 = 0$ represents a circle. State its center and radius.

(i) Center: _____ (ii) Radius: _____

Bonus (after attempting the problems above, do these for extra credit)**:**

1. Suppose (x_1, y_1) and (x_2, y_2) lie on a straight line. For this line:

(a) Write an **equation** that gives its slope: _____

(b) Write down the *point-slope form* **equation** of the line: _____

(c) Write down the *slope-intercept form* **equation** of the line: _____

2. Suppose m_1 and m_2 are the slopes of two non-vertical lines. What is the relationship between their slopes if:

(a) They are parallel: _____

(b) They are perpendicular: _____