Math 195 Quiz 6A
March 6, 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. Solve the following equations:

(a) $1 - \frac{3}{x} = \frac{18}{x^2} \Longrightarrow x =$ _____ (b) $\frac{4}{x-3} + \frac{2}{x+3} = \frac{9}{x^2-9} \Longrightarrow x =$ _____

(c) $\frac{1}{x} = \frac{1}{b} - \frac{1}{a} \Longrightarrow x =$ _____ (d) $x + 4 = \sqrt{x + 10} \Longrightarrow x =$ _____

4. Solve the following inequalities (write your answer in interval notation):

(a) $|3x - 2| \geq 5 \Longrightarrow x \in$ _____ (b) $x^2 + 2x > 3 \Longrightarrow x \in$ _____

(c) $\frac{x+2}{x+3} < \frac{x-1}{x-2} \Longrightarrow x \in$ _____

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

1. Compute the distance between $(-5, -4)$ and $(3, -6)$: $d =$ _____

2. Compute the midpoint between $(-5, -4)$ and $(3, -6)$: $M =$ _____

3. Find the equation of the circle that has $(-5, -4)$ and $(3, -6)$ as endpoints of its diameter.

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