Math 195 Quiz 3B
February 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) $x^a \cdot x^b =$ _____ (b) $x^{a/b} =$ _____ (c) $x^{-n} =$ _____ (d) $\dfrac{x^a}{x^b} =$ _____

   (e) $a^2 - b^2 =$ _____ (f) $a^3 - b^3 =$ _____

2. Define: $|x| =$ _____

3. Sketch: $y = |x + 1|$

4. State the domain, in interval notation, of $f(x) = \sqrt{9 - x^2} + x^{-1/4}$. $dom(f) =$ _____

5. Simplify/combine as appropriate, you may leave negative powers in your answer:

   (a) $\left(\dfrac{a^3 b^{-2} c^{-1}}{3a^7 b^5 c^{-2}}\right)^2 \left(\dfrac{2a^5 b^{-3} c^2}{5a^{-2} b^4 c^{-2}}\right)^{-2} =$ _____   (b) $|a|\sqrt{8ab^2 c^3} - |ab|\sqrt{18a^3 c} =$ _____

6. Factor: $x^3 + x^2 - 9x - 9 =$ _____

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

1. Reduce to lowest terms: $\dfrac{y^4 - 16}{2 - y} =$ _____

2. Factor completely: $6x^{7/3} - x^{4/3} - 2x^{1/3} =$ _____

3. Expand: $(x - 1)^3 =$ _____