

Math 195 Quiz 3A

February 11, 2019

Name: _____

Instructions: No calculators! Answer all 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. Define: $|x| =$ _____

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

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

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

(a) $\left(\frac{x^3y^{-2}z^{-1}}{3x^7y^5z^{-2}}\right)^2 \left(\frac{2x^5y^{-3}z^2}{5x^{-2}y^4z^{-2}}\right)^{-2} =$ _____ (b) $|x|\sqrt{8xy^2z^3} - |yz|\sqrt{18x^3z} =$ _____

6. Factor: $x^3 + x^2 - 4x - 4 =$ _____

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

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

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

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