

Math 195 Quiz 5A

February 25, 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. Solve the following equations:

(a)  $\frac{1}{3}x - 2 = \frac{5}{3}x + 7 \Rightarrow x =$  \_\_\_\_\_ (b)  $x^2 + 3x - 4 = 0 \Rightarrow x =$  \_\_\_\_\_

(c)  $4x^2 - 4x - 15 = 0 \Rightarrow x =$  \_\_\_\_\_ (d)  $x^3 - x^2 - x + 1 = 0 \Rightarrow x =$  \_\_\_\_\_

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

1. Solve the following equations:

(a)  $\sqrt{5-x} + 1 = x - 2 \Rightarrow x =$  \_\_\_\_\_

(b)  $\frac{3}{x+1} - \frac{1}{2} = \frac{1}{3x+3} \Rightarrow x =$  \_\_\_\_\_

2. Solve the following inequality, write your answer in interval notation:

$x^2 - 3x - 18 \leq 0 \Rightarrow x \in$  \_\_\_\_\_