Math 195 Quiz 4A
February 20, 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. Reduce and simplify the following rational expressions:

   (a) $\frac{x^6-64}{x^2-4} = $ _____ (b) $\frac{250a+100ax+10ax^2}{50a-2ax^2} = $ _____

   (c) $\frac{ad-ad^2}{d-1} = $ _____ (d) $\frac{42x^2+23x-10}{14x^2+45x-14} = $ _____

   (e) $\frac{28x^3y^5+42x^4y^3}{7x^2y^2} = $ _____

3. Combine and simplify the following rational expressions:

   (a) $\frac{3a^2+7ab-20b^2}{a^2+5ab+4b^2} \div \frac{3a^2-17ab+20b^2}{3a-12b} = $ _____ (b) $\frac{2x-4}{x+2} - \frac{x-6}{x+2} = $ _____

   (c) $5 - \frac{x}{2x+1} = $ _____ (d) $2 + \frac{1}{x} + \frac{x}{3x+9} - \frac{3}{x^2+3x} = $ _____

   (e) $\frac{4 - \frac{1}{x^2}}{4 - \frac{4}{x} + \frac{1}{x^2}} = $ _____

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

1. Combine: $\left(1+\frac{2}{x+1}\right)\left(1+\frac{2}{x+3}\right)\left(1+\frac{2}{x+5}\right)\left(1+\frac{2}{x+7}\right) = $ _____

2. Solve for x: $\frac{x}{x-2} + \frac{2}{3} = \frac{2}{x-2} \Rightarrow x = $ _____