

Math 1203 Quiz 3

January 29, 2019

Name: _____

Instructions: No calculators. Answer all problems in the space provided! Do your rough work on scrap paper.

1. Find the domains of the following functions in interval notation:

(a) $f(x) = \frac{2x+1}{x^2-x-2}$ D: _____ (b) $g(x) = \frac{\sqrt{1-x}}{\sqrt{9-x^2}}$ D: _____

2. Let $f(x) = 2x^2 + 1$, compute $\frac{f(2+h)-f(2)}{h} =$ _____

3. Odd, Even or neither?

(a) $\frac{1}{x^4 - 3x^3}$: _____ (b) $\frac{2x^4 - 3x^2}{-3x^6 + x^{12}}$: _____ (c) $\frac{3x^3 - 7x^5}{5x^7 + 2x^9}$: _____

4. Complete the rules: (i) $a^x \cdot a^y =$ _____ (ii) $a^{x/y} =$ _____ (iii) $(a^x)^y =$ _____

5. Let $f(x) = \begin{cases} 1 - x^2 & \text{if } x < 3 \\ 2 & \text{if } 3 \leq x < 5 \\ 1 + x & \text{if } x > 5 \end{cases}$

(a) Evaluate $f(2) =$ _____

(b) Evaluate $f(5) =$ _____

(c) What is $dom(f) =$ _____

Bonus:

1. If $f(x) = 2x^2 - x + 4$ and $g(x) = 3x - 1$, find:

(a) $f \circ g =$ _____ (b) $g \circ f =$ _____

2. Describe what it means for $f(x)$ to be increasing: _____

3. Suppose you have a function $f(x)$, how does the graph of $g(x) = 2f(x) - 4$ relate to the graph of $f(x)$?
