

Math 201 Quiz 3A

September 9, 2019

Name: _____

Instructions: No calculators. Use your own scrap. Write your fully simplified answers in the space provided.

1. Complete the following rules:

(a) $a^x \cdot a^y =$ _____ (b) $a^{\frac{x}{y}} =$ _____ (c) $\log_a(x^n) =$ _____

(d) $\log_a\left(\frac{x}{y}\right) =$ _____ (e) $\log_a 1 =$ _____ (f) $\log_a 0 =$ _____

(g) $(a^x)^y =$ _____ (h) $\log_a b = c$ means _____

(i) $x^{-a} =$ _____ (j) $\log_a a^x =$ _____

2. True or false: $\log_a(x + y) = \log_a x + \log_a y$ _____

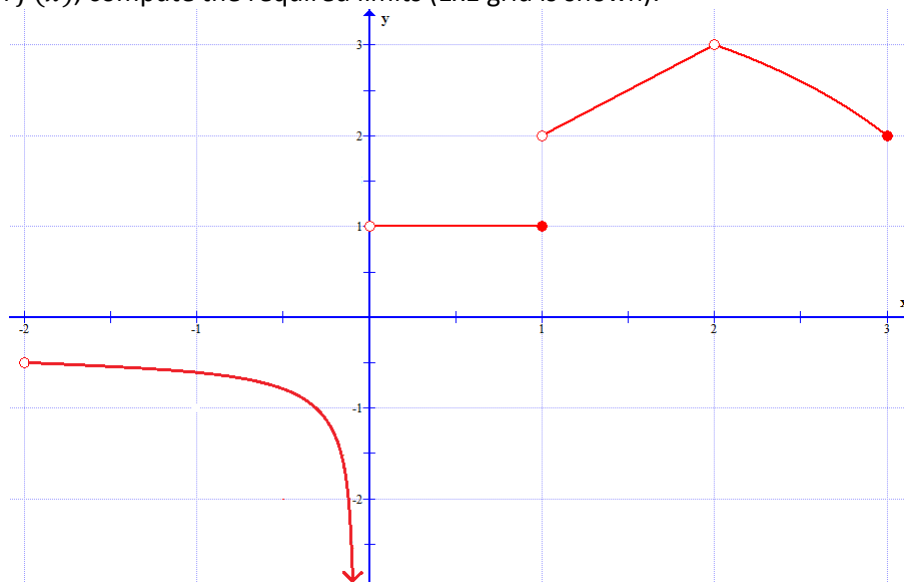
3. Expand and simplify: $\ln\left(\frac{x^7\sqrt{pq^3}}{e^5}\right) =$ _____

4. Simplify: $e^{2\ln\sqrt{9}+2\ln x} =$ _____

5. Solve the following equations:

(a) $2e^{3x-1} = 5: \Rightarrow x =$ _____ (b) $\ln\sqrt{x+1} = 3: \Rightarrow x =$ _____

6. Given the graph $f(x)$, compute the required limits (1x1 grid is shown):



(a) $\lim_{x \rightarrow 1} f(x) =$ _____ (b) $\lim_{x \rightarrow 1/2} f(x) =$ _____ (c) $\lim_{x \rightarrow 2} f(x) =$ _____

Bonus: (You must attempt all problems above to be eligible)

1. Compute: (a) $\lim_{x \rightarrow -1} \frac{x+1}{x^2+1} =$ _____ (b) $\lim_{x \rightarrow 0} \frac{\sin x}{x} =$ _____ (c) $\lim_{x \rightarrow 2} \frac{x+2}{x^2-4} =$ _____