Math 1203 Quiz 4
February 5, 2019

Name: _____

Instructions: Answer <u>all</u> problems in the space provided! Do your rough work on scrap paper.

1. Complete the following rules:

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

(d) $x^{-a} =$ _____

2. Suppose you have a line passing through points (x_1, y_1) and (x_2, y_2). What is an equation that describes its slope?

_____

3. What is the point-slope form of the equation of a line? _____

4. What is the slope intercept form for the equation of a line? _____

5. Describe when you should use an exponential model to describe a quantity: _____

_____

_____

6. Jhevon decided to pay taxes on his income from his hotdog stand. He bought his stand for $16,500, and his accountant (every hotdog vendor should have an accountant) plans to depreciate the stand, for tax purposes, to a value of $0 over 10 years. Assuming this depreciation is linear and is described by a function $V(t)$—the value of the hotdog stand after t years from purchase,

(a) Find a formula for $V(t)$: _____

(b) What is the domain of $V(t)$? _____

(c) What is the range of $V(t)$? _____

(d) What does the slope of $V(t)$ represent? _____

_____

Write your answer to (b) and (c) above in interval notation.

Bonus:

1. Solve the following equations:

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

2. Simplify: $\ln\sqrt{\frac{3x^2e^x}{\sqrt{x}}} =$ _____ (expand)