QUIZ 9 - MATH 111 Your Name:

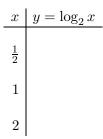
Read each problem **very carefully** before starting to solve it. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] Convert from a logarithmic to an exponential and from an exponential to a logarithmic form, as appropriate.

$$\log_3 x = 2 \longrightarrow \qquad \qquad \longleftarrow \quad e^x = 23$$
$$\log_b 7 = \frac{1}{2} \longrightarrow \qquad \qquad \longleftarrow \quad b^7 = c$$

2. [4 points]

(a) Fill-in the values in the following table and sketch the graph of the function $y = \log_2 x$.



y

(b) Write formulas and the corresponding transformations (in the parentheses provided) leading from $y = \log_2 x$ to $f(x) = 2 \log_2 (x+3) - 7$.

$y = \log_2 x$	\longrightarrow	()
	\longrightarrow	()
	\longrightarrow	()

(c) Find the domain, range and vertical asymptote of y = f(x) (you do not have to graph).

3. [4 points] Find a formula, based on logarithm base 3 for the graph depicted in the picture below. (Explain all your steps).

