Read each problem **very carefully** before starting to solve it and do only what is asked. 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] Use small tables of values (as done in class) to sketch the graphs of the functions

$$f(x) = \left(\frac{1}{2}\right)^x$$
 and  $g(x) = \log_{\frac{1}{2}} x$ 

on the same system of coordinate axes.

2. [4 points] Write the formulas and transformations needed to get from the given parent function to the transform indicated.

$$y = \log_{\frac{1}{2}} x \longrightarrow ($$
 ( ))  

$$\longrightarrow ($$
 )  

$$\longrightarrow ($$
 )  

$$\longrightarrow y = -3 \log_{\frac{1}{2}} (x+1) + 4 ($$
 )

3. [4 points] Find a possible formula for the logarithmic function shown if it is know that it is a transform of  $y = \log_{\frac{1}{2}} x$ .

