

Worksheet: Continuity

1. (# 61 in 2.4) Graph the function on the back of the sheet. Find x values (if any) at which f is not continuous. For each discontinuity, precisely explain why it is discontinuous. Are the discontinuities removable?

$$f(x) = \begin{cases} \ln(x+1), & x \geq 1, \\ 1-x^2, & x < 1 \end{cases}$$

2. (similar to # 87 in 2.4) Graph this function on the back. Describe the intervals on which it is continuous.

$$h(x) = \cot \frac{\pi x}{3}$$

3. (# 73 in 2.4) Find the constants a and b so that the function is continuous on the entire real line. Sketch the graph of the resulting continuous function (on the back).

$$g(x) = \begin{cases} 2, & x \leq -1, \\ ax + b, & -1 < x < 3, \\ -2, & x \geq 3 \end{cases}$$