Present neatly on separate paper. Justify for full credit. ~~No~~ Calculators.

Name _____ Score _____ ~10 minutes

1.
Numerically investigate the following limit. Does it exist?

$$\lim_{x\to 0}(1+x)^{1/x}$$

2.
Neatly sketch a function that satisfies the following criteria, or explain why it does not exist:

(i) the domain of f is $(-\infty, 0]$
(ii) $f(-2) = f(0) = 1$
(iii) $\lim_{x\to -2} f(x) = +\infty$