AP Calculus AB Mr. Shubleka Quiz: 4

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

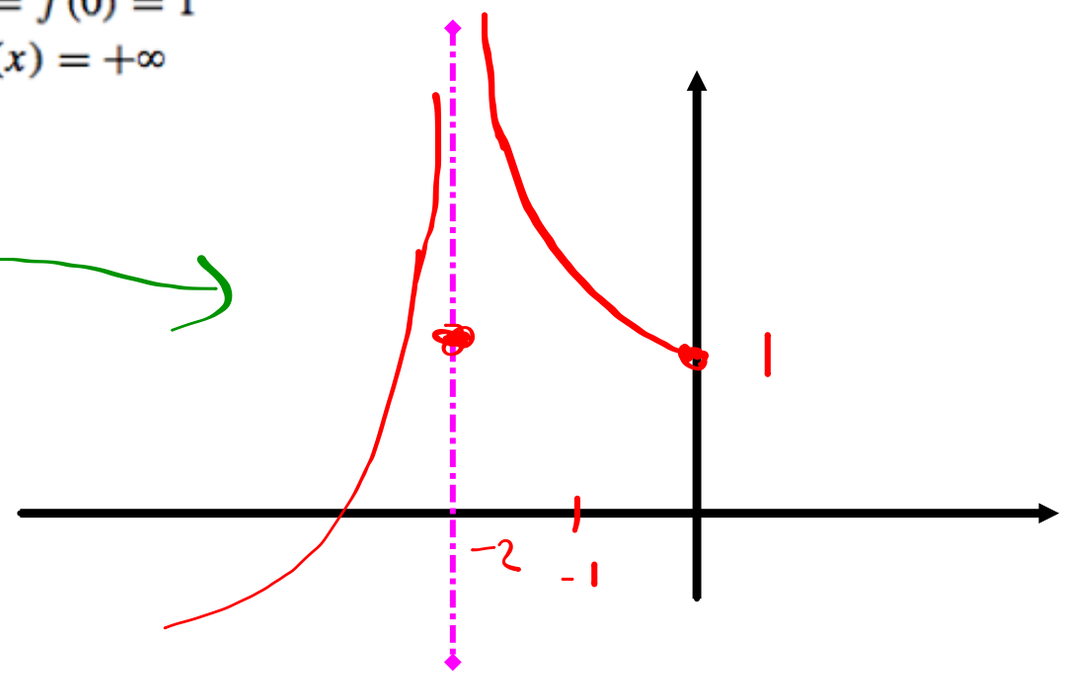
Name _____ Score _____ ~10 minutes

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) $\lim_{x\to -2} f(x) = +\infty$



x	(1+x)^(1/x)
-0.1	2.86797199
-0.01	2.73199903
-0.001	2.71964222
-0.0001	2.71841776
0.0001	2.71814593
0.001	2.71692393
0.01	2.70481383
0.1	2.59374246

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