name : _____

section : 109

GSI : Charles Wang

(2 pts) Circle True or False, or leave it blank. (+1 for correct, 0 for blank, -1 for incorrect)

1. (True False) A function that is not surjective can be made surjective by restricting the domain.

2. (True False) $f(x) = \sin(x)$ defined as a function from $\mathbb{R}$ to $[-1, 1]$ has an inverse.

(10 pts) For the following, you must **justify** your answer to receive credit. (Showing your work counts as justification.)

3. Compute the following limits, or (briefly) explain why they do not exist:

(a) $\lim_{x \to \infty} \frac{2x+7}{3x+12}$

(b) $\lim_{x \to \pi} \tan(x + \frac{\pi}{2})$