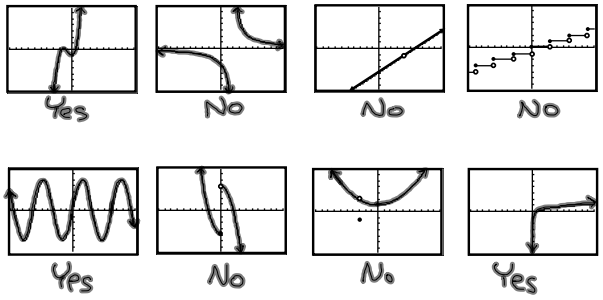
Calculus AB

1-4

(Day 1)

Continuity

Without a formal definition, which of the following functions would you consider to be **continuous**?



Definition of Continuous -

a function f is continuous at c iff

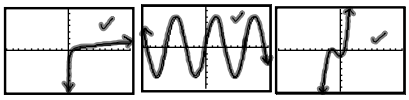
1) $f(c)$ exists

2) $\lim_{x \to c} f(x)$ exists

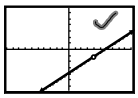
3) $\lim_{x \to c} f(x) = f(c)$

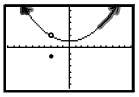
Categorize each graph as one of the following.

Continuous:

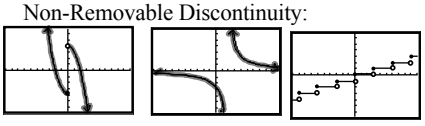


Removable Discontinuity:





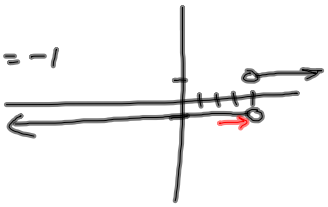
Non-Removable Discontinuity:



Find the limit (if it exists). If it does not exist, explain why.

7) $\lim_{x \to 5^+} \dfrac{x - 5}{x^2 - 25} = \dfrac{x-5}{(x-5)(x+5)} = \dfrac{1}{10}$

*) $\lim_{x \to 4^-} \dfrac{x - 4}{|x - 4|} = -1$



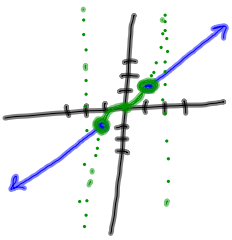
Find the x values (if any) at which f is not continuous. Which of the discontinuities are removable?

37) $f(x) = \dfrac{x}{x^2 + 1}$ No problems continuous

aF(bx-c)+d atan(bx-c)+d

49) $f(x) = \begin{cases} \tan \frac{\pi x}{4}, & |x| < 1 \\ x, & |x| \geq 1 \end{cases}$

continuous



Assignment:

Pg. 78

1-5 odd,

7-57 odd

I gave the odds, so check the answers as you go.

A helpful guide to math (calculus) homework. If you get stuck on a problem, go to the next. The more problems you attempt, the more you learn from the assignment. If you don't know how to do a whole section of problems, go to the next.

In this assignment, the problems in the 7 - 21 section get pretty tough, so make sure you try some from the rest, which really aren't all that bad.