Max and min *Math 104 Section 106 - Oct 2012*

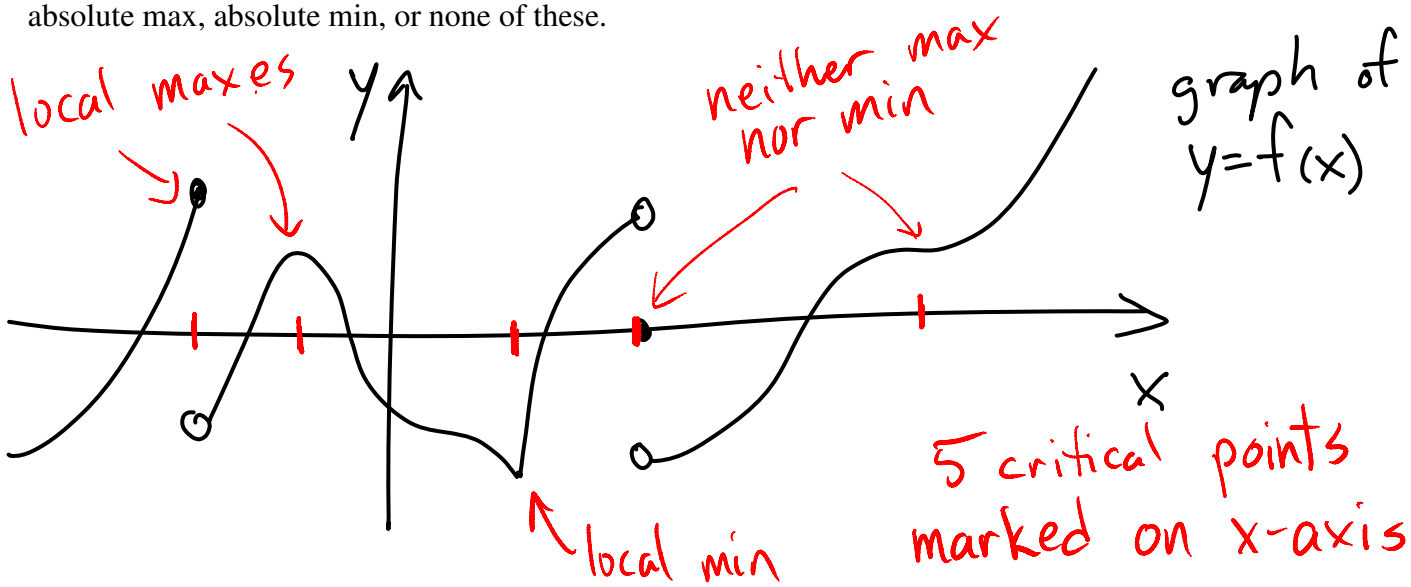
Group Names and Student Numbers (minimum of two names required for participation to be recorded):

1._____ 2._____ 3._____

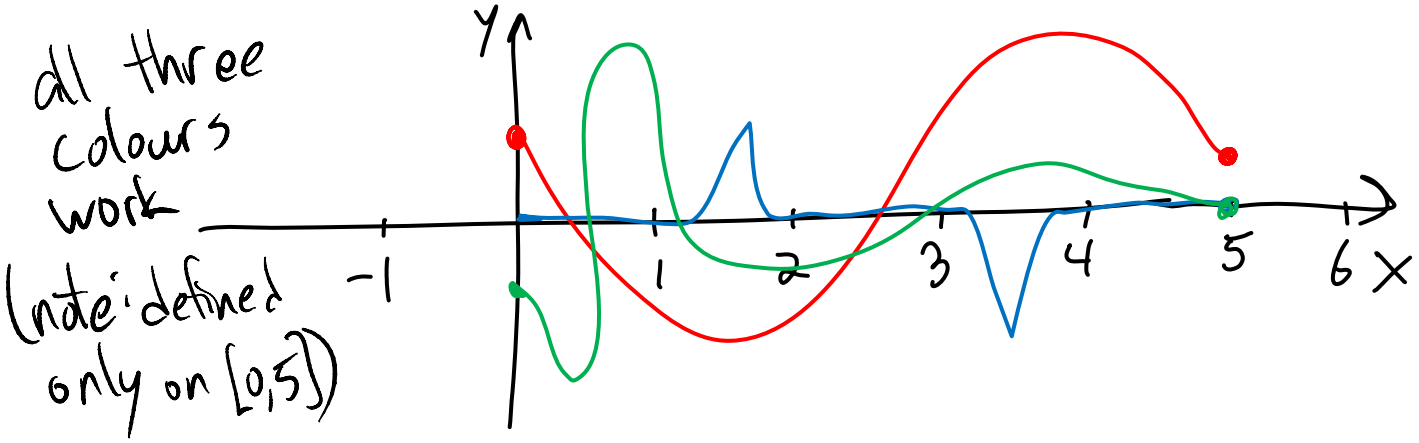
_____ _____ _____

Solutions

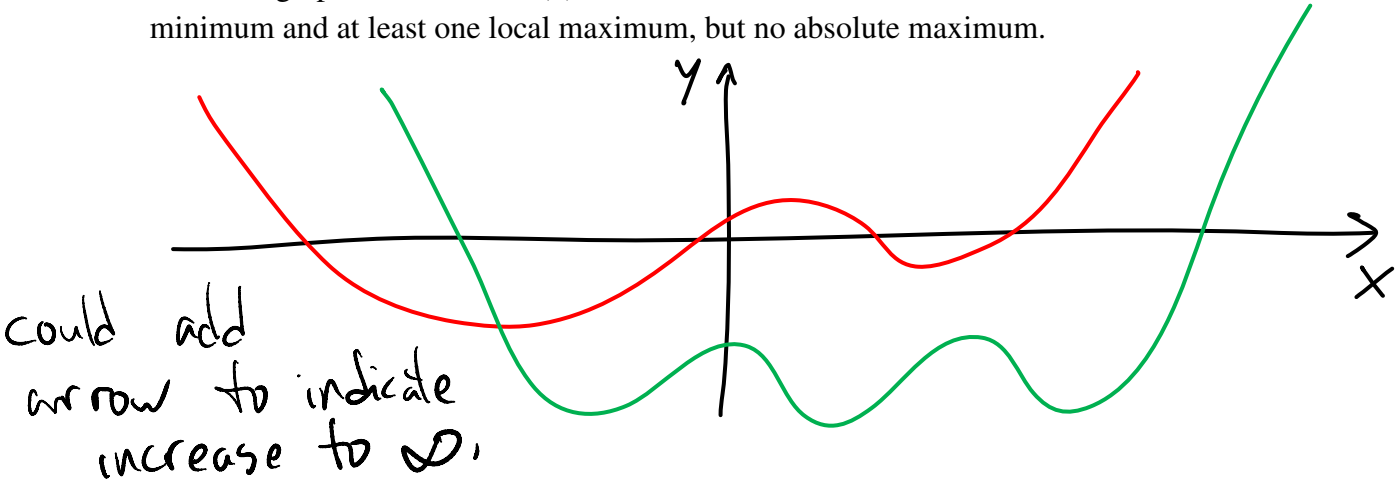
1. Identify each of the critical points on the graph below and classify them as local max, local min, absolute max, absolute min, or none of these.



2. Draw the graph of a function f(x) defined only on [0,5] that is continuous and where both the absolute max and absolute min occur at points that are not x=0 nor x=5 (i.e. not at the endpoints).



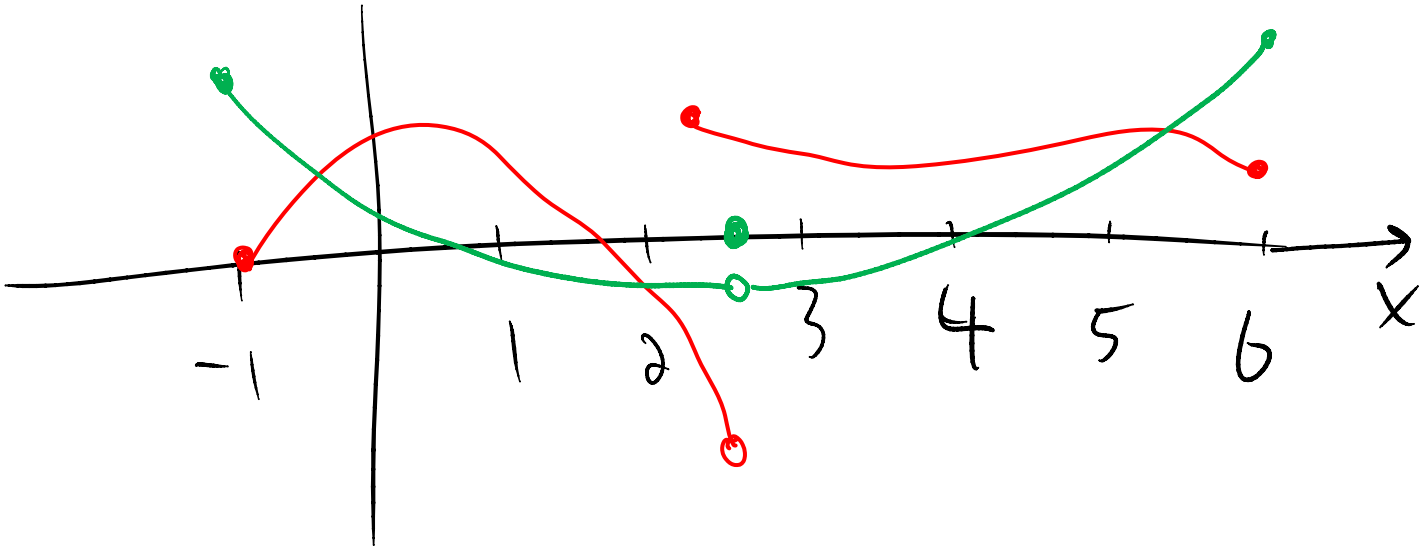
3. Draw the graph of a function f(x) defined for all real values of x that is continuous and has an absolute minimum and at least one local maximum, but no absolute maximum.



4. Can you draw the graph of a function f(x) defined on [-1,6] that has no absolute minimum (if so, sketch it below)? What does the Extreme Value Theorem have to say about this situation (explain)?

Yes! Extreme Value Theorem requires a continuous function, not required here.

Two examples:



5. Draw the graph of a function f(x) defined for all real values of x that is continuous and has both an absolute minimum and an absolute maximum.