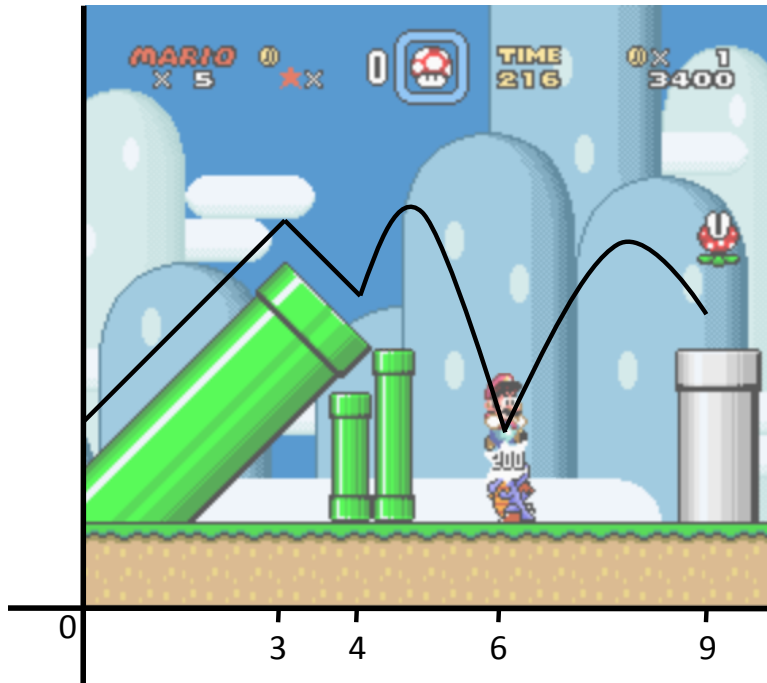


MATH*1200 – LAB #4: CONTINUITY WITH MARIO

www.nathanieljohnston.com/math1200/lab4.pdf

Solution: www.nathanieljohnston.com/math1200/lab4_solution.pdf



Mario is running and jumping to the right in level 1 of Super Mario World. When his horizontal position is x , his height $h(x)$ is given by the following branch function:

$$h(x) := \begin{cases} x + 3, & 0 \leq x < 3 \\ 9 - x, & 3 \leq x < 4 \\ -4x^2 + 39x - 87, & 4 \leq x < 6 \\ -x^2 + 16x - 57, & 6 \leq x \leq 9 \end{cases}.$$

Prove that Mario's path is continuous on the interval $[0, 9]$. That is, check that the function $h(x)$ is continuous at $x = 3, 4$, and 6 .

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