DATE: _______________

1) On the interval $[0,4]$, $h(0) > 10$ and $h(4) < 10$, but there is no value of x on $[0,4]$ where $h(x) = 10$. Explain why this result does not contradict the Intermediate Value Theorem.

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2) Steven runs back and forth on a straight track. His velocity, measured in meters per minute, is given by the continuous function, $v(t)$, where t is measured in minutes. Selected values for $v(t)$ are given in the table below.

t (minutes)	0	1	4	5	10
$v(t)$ (meter/min)	0	70	30	-5	-7

Do the data in the table support the conclusion that Steven's velocity is -10 meters per minute at some time t with $4 < t < 5$?

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x	0	4	6	8	13
$f(x)$	3	4.5	3	2.5	4.4

3) The table above shows selected values of a continuous function f. For $0 \le x \le 13$, what is the fewest possible number of times $f(x) = 4$?

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4) Let f be a function of x. Which of the following statements, if true, would guarantee that there is a number c in the interval $[-5,4]$ such that $f(c) = 12$?

(A) f is increasing on the interval $[-5,4]$, where $f(-5) = 0$ and $f(4) = 20$.

(B) f is increasing on the interval $[-5,4]$, where $f(-5) = 15$ and $f(4) = 30$.

(C) f is continuous on the interval $[-5,4]$, where $f(-5) = 0$ and $f(4) = 20$.

(D) f is continuous on the interval $[-5,4]$, where $f(-5) = 15$ and $f(4) = 30$.