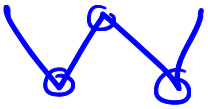
Derivative Test Wrap Up

Name

1. Let f be a differentiable function with a domain of $(0, 10)$. It is known that $f'(x)$, the derivative of $f(x)$, is negative on the intervals $(0, 2)$ and $(4, 6)$ and positive on the intervals $(2, 4)$ and $(6, 10)$. Which of the following statements is true?



(A) f has no relative minima and three relative maxima.

(B) f has one relative minimum and two relative maxima.

(C) f has two relative minima and one relative maximum.

(D) f has three relative minima and no relative maxima.

2.

x	0	1	2	3	4	5
$f'(x)$	-3	0	-1	5	0	-3
$f''(x)$	5.3	-2.0	1.7	-0.5	1.2	-5.1

Let f be a twice-differentiable function. Selected values of f' and f'' are shown in the table above. Which of the following statements are true?

1. f has neither a relative minimum nor a relative maximum at $x = 1$.
2. f has a relative maximum at $x = 1$.
3. f has a relative maximum at $x = 4$.

(A) I only

(B) II only

(C) III only

(D) I and III only

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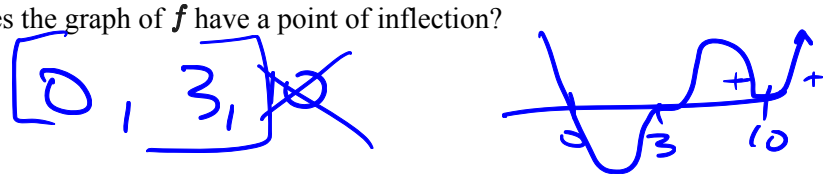
3. The second derivative of a function f is given by $f''(x) = x(x-3)^5(x-10)^2$. At which of the following values of x does the graph of f have a point of inflection?



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A **3** only

B **0** and **3** only

C **3** and **10** only

D **0**, **3**, and **10**

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4. Let *f* be a function defined and continuous on the closed interval [a,b]. If *f* has a relative maximum at *c* and *a, which of the following statements must be true?*

I. *f'(c)* exists.

II. If *f'*(*c*) exists, then *f'*(*c*)=0

III. If *f'*(*c*) exists, then $f''(c) \leq 0$.

A II only

B III only

C I and II only

D I and III only

E II and III only

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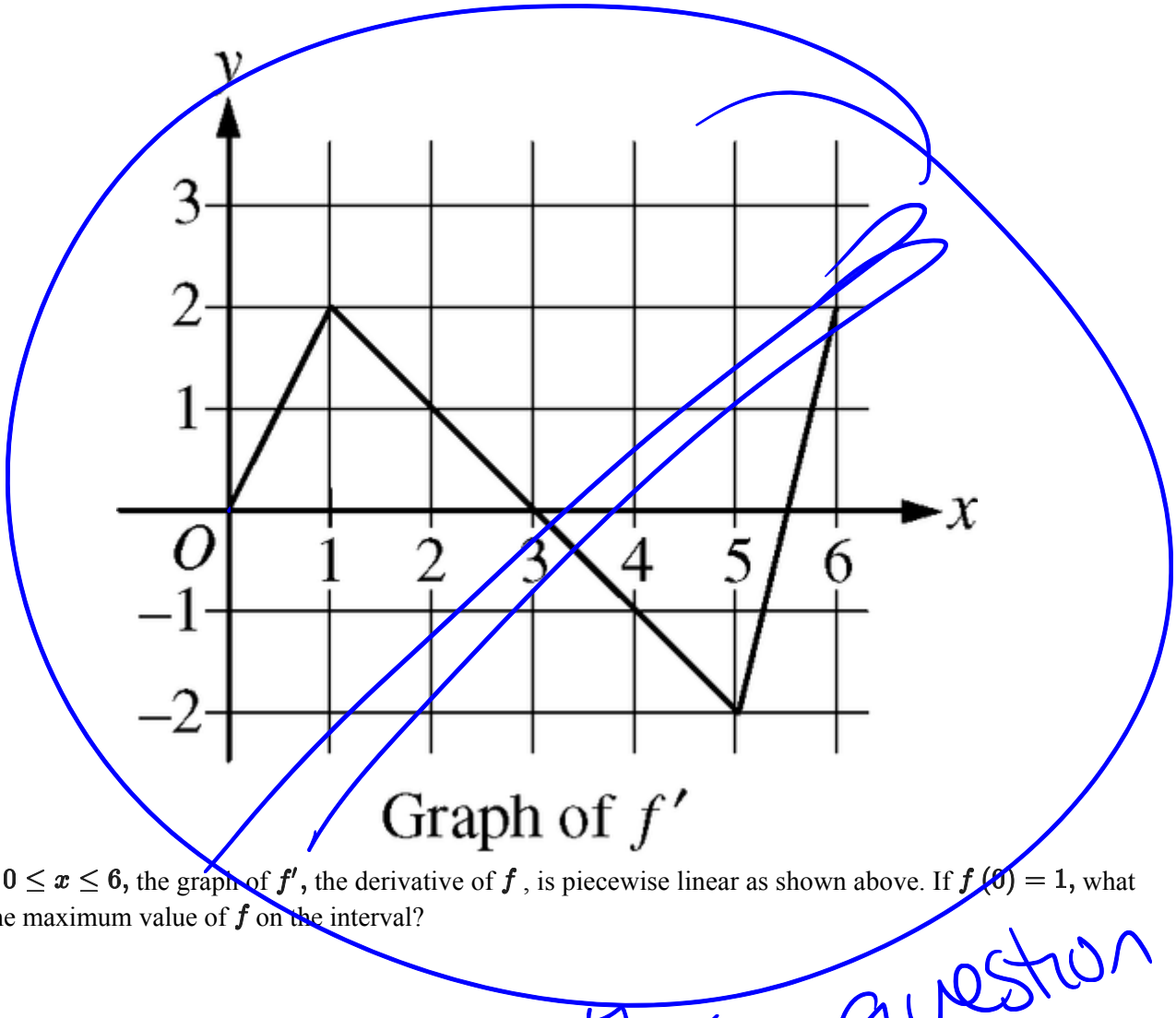
5.



Graph of f'

For $0 \le x \le 6$, the graph of f', the derivative of f, is piecewise linear as shown above. If $f(0) = 1$, what is the maximum value of f on the interval?

(A) 1

(B) 1.5

(C) 2

(D) 4

(E) 6

sorry This question shouldnt be here we'll do this later.