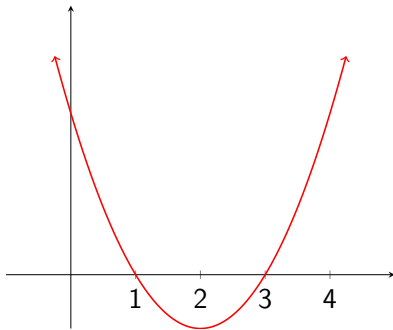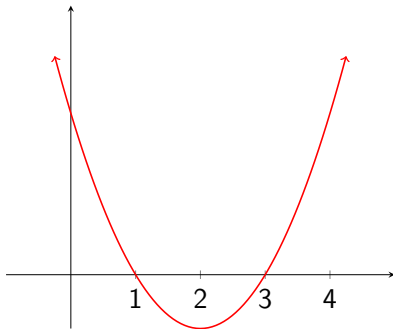1. Suppose f is a function whose *derivative* has the graph depicted on the right. How many critical points does f have on the interval $[0, 4]$?

(A) None

(B) 1

(C) 2

(D) 3 or more

1.   Suppose f is a function whose *derivative* has the graph depicted on the right. How many critical points does f have on the interval $[0, 4]$?

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(B) 1

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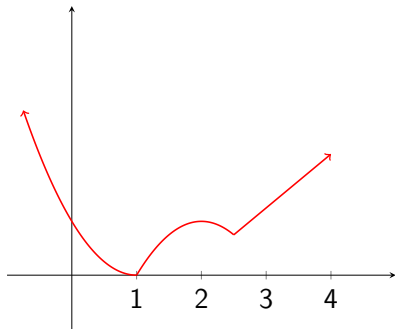
(D) 3 or more

Follow-up. Sketch a graph of f.

2. The graph of a function f is depicted to the right. On which of the following open intervals is $f'(x) > 0$?

(A) $(0, 1)$

(B) $(1, 2)$

(C) $(2, 2.5)$

(D) None of the above

2. The graph of a function f is depicted to the right. On which of the following open intervals is $f'(x) > 0$?

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(B) $(1, 2)$

(C) $(2, 2.5)$

(D) None of the above
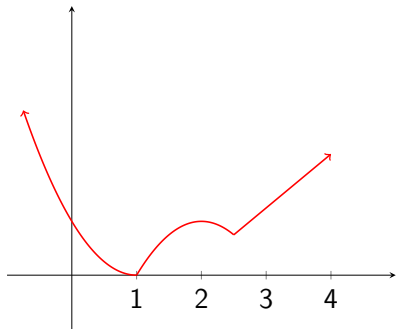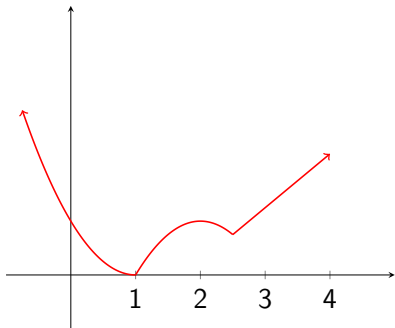
Follow-up. Sketch a graph of f'.

3. The graph of a function f is depicted to the right. On which of the following open intervals is $f''(x) > 0$?

(A) $(0, 1)$

(B) $(1, 2.5)$

(C) Neither of the above
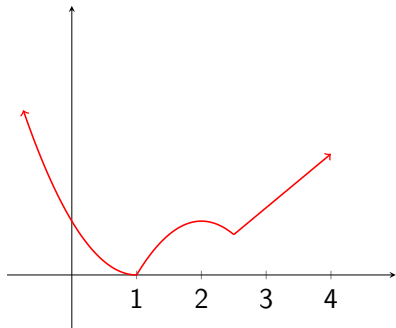
3.   The graph of a function f is depicted to the right. On which of the following open intervals is $f''(x) > 0$?

(A) $(0, 1)$

(B) $(1, 2.5)$

(C) Neither of the above

Follow-up. Sketch a graph of f''.

4. True or False?

If f is a function such that $f'(x) > 0$ for all real numbers x, then it must be the case that

$$\lim_{x \to \infty} f(x) = \infty.$$

5.   True or False?

The function
$$f(x) = x + \ln(x)$$
has a vertical asymptote at $x = 0$.

Follow-up. Sketch a graph of f.