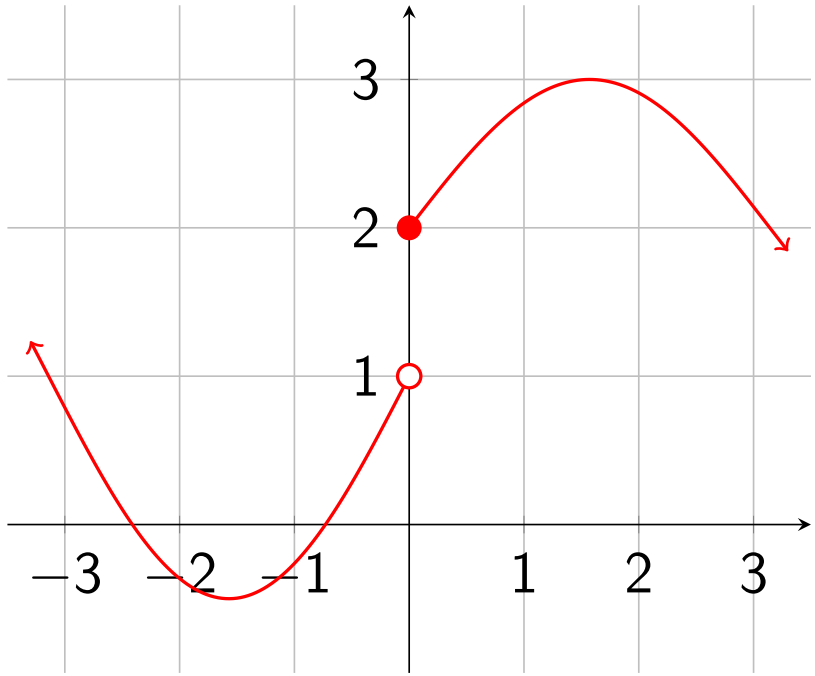
Suppose f is the function graphed on the right.



1. $\lim_{x \to 0} f(x) = ?$

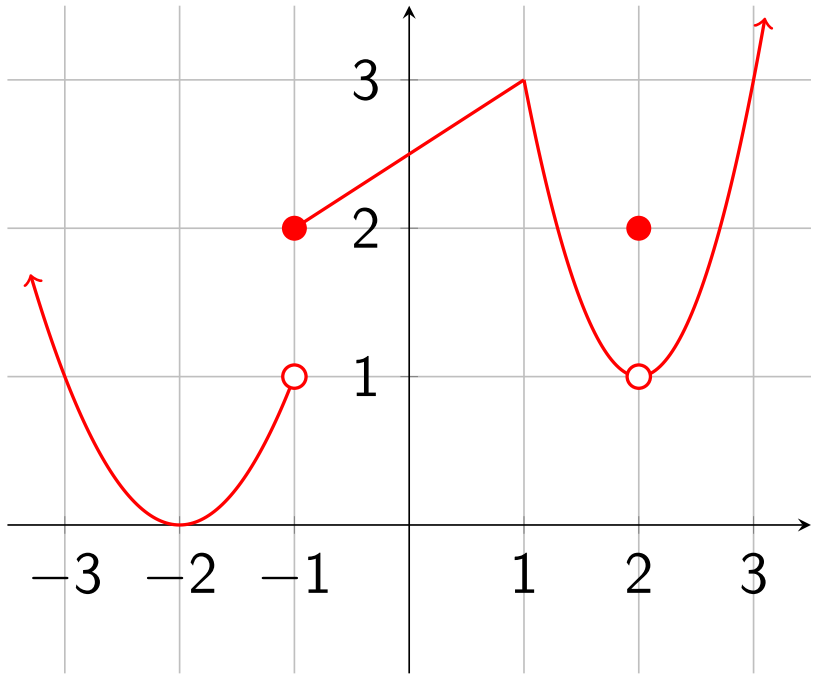
(A) 1

(B) 2

(C) Does not exist

(D) None of the above

Suppose f is the function graphed on the right.



2. How many discontinuities does f have?

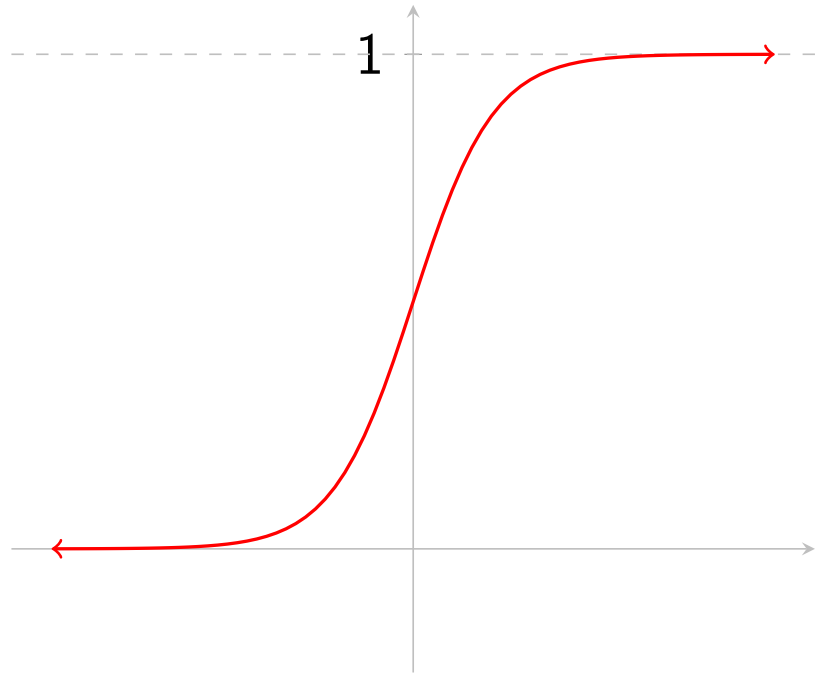
(A) 1

(B) 2

(C) 3

(D) None of the above

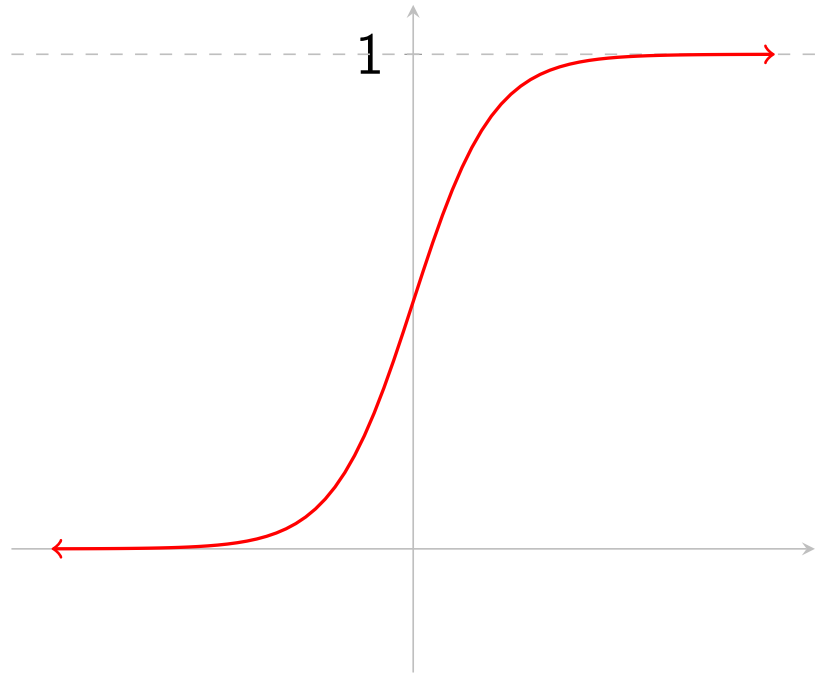
Suppose f is the function graphed on the right.



3. True or False?

$\lim_{x \to \infty} f'(x) = 1.$

Suppose f is the function graphed on the right.

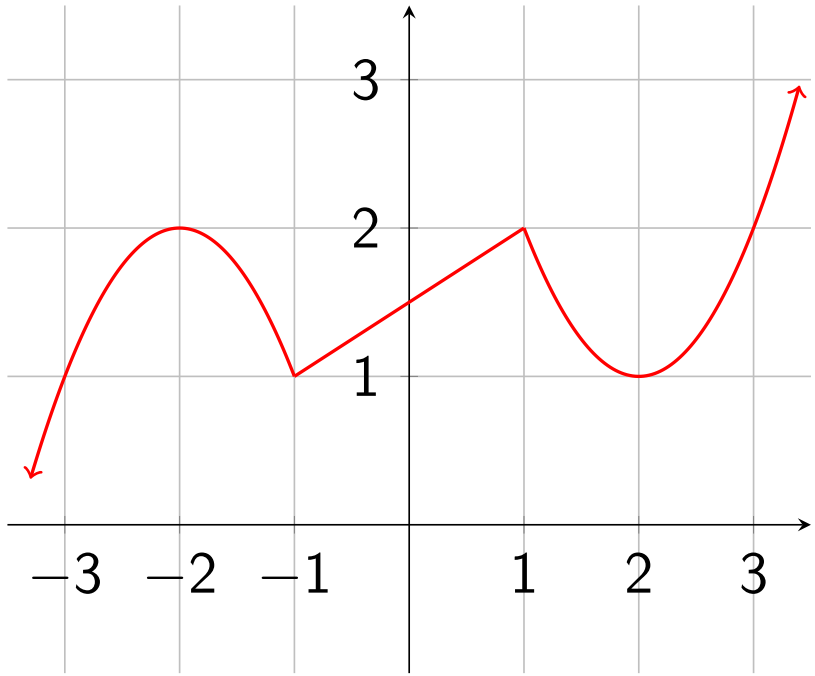


3. True or False?

$\lim_{x \to \infty} f'(x) = 1.$

Follow-up. Sketch a graph of f'.

Suppose f is the function graphed on the right.



4. How many critical points does f have?

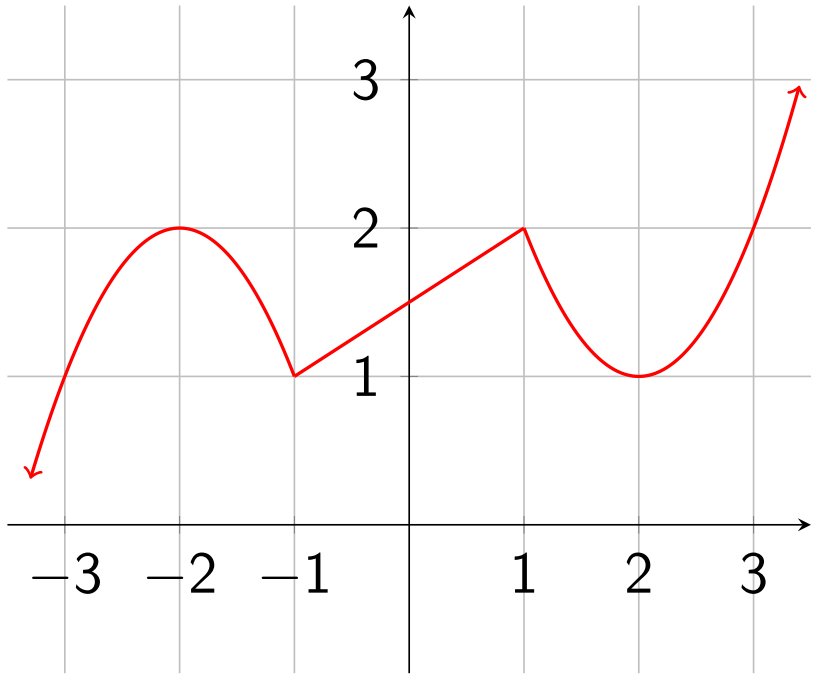
(A) 2

(B) 4

(C) 6

(D) None of the above

Suppose f is the function graphed on the right.



5. On which of the following intervals is $f' > 0$?

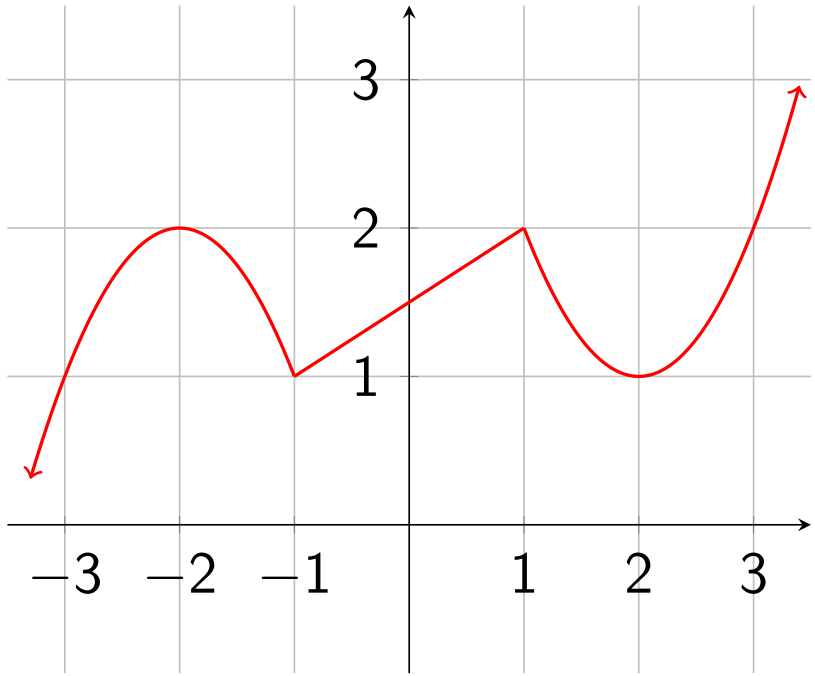
(A) $(-2, -1)$

(B) $(-1, 1)$

(C) $(1, 2)$

(D) None of the above

Suppose f is the function graphed on the right.



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Follow-up. Sketch a graph of f'.

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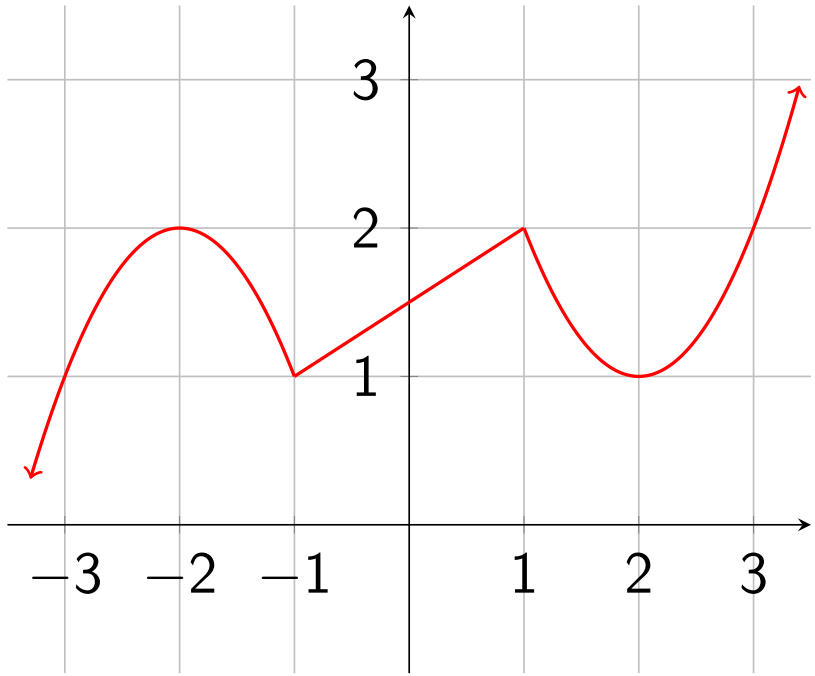


6. On which of the following intervals is $f'' > 0$?

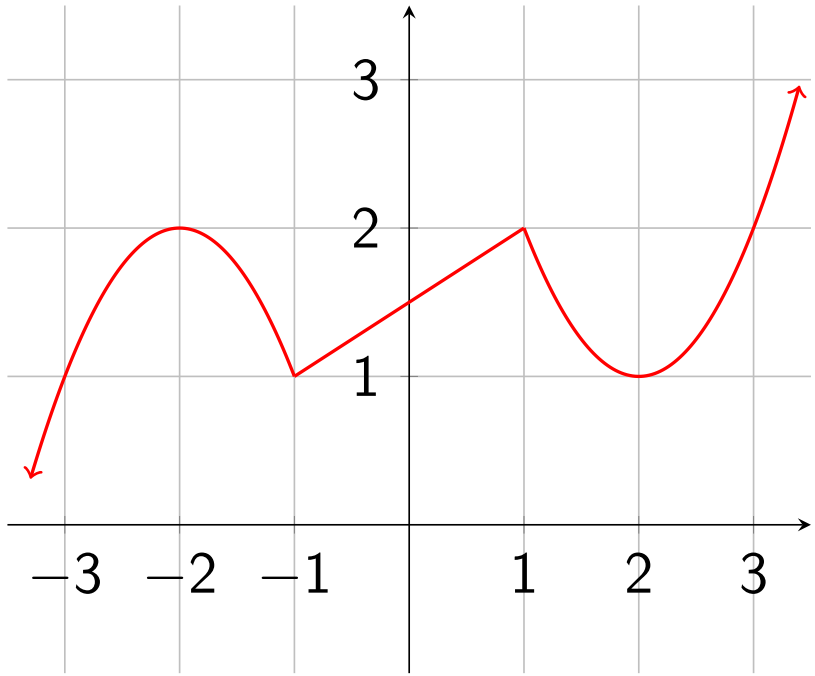
(A) $(-\infty, -1)$

(B) $(-1, 1)$

(C) $(1, \infty)$

(D) None of the above

Suppose f is the function graphed on the right.



6. On which of the following intervals is $f'' > 0$?

(A) $(-\infty, -1)$

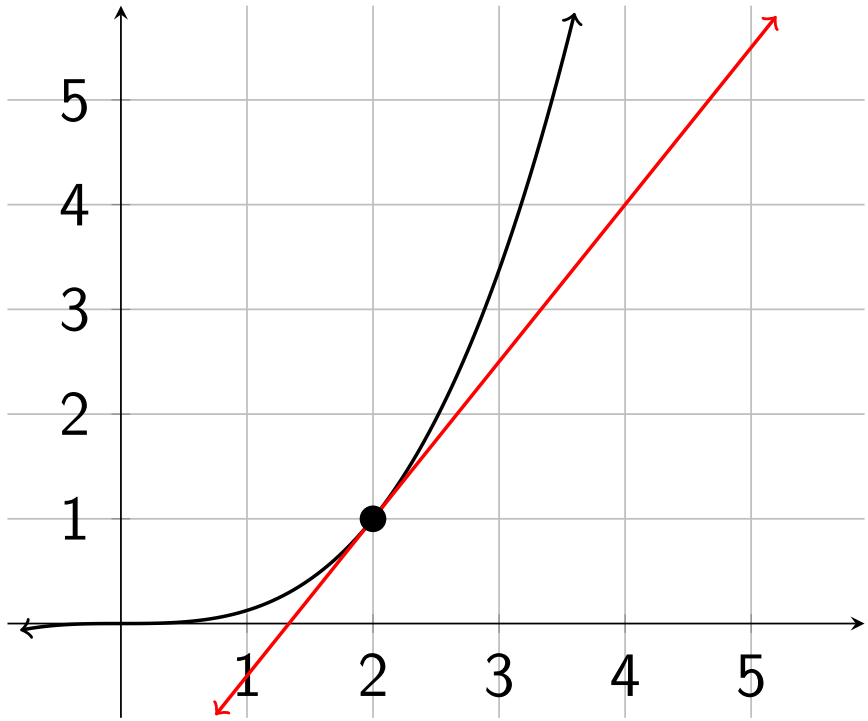
(B) $(-1, 1)$

(C) $(1, \infty)$

(D) None of the above

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

A function f and its tangent line at $(2, 1)$ are graphed on the right.



7. What is the slope of the tangent line of f^{-1} at the point $(1, 2)$?

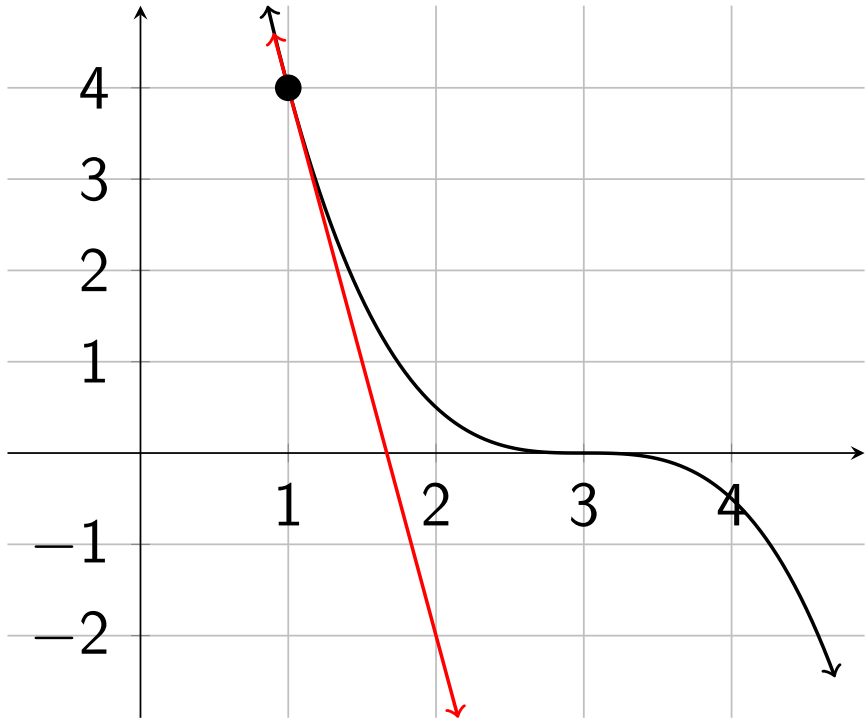
(A) $3/2$

(B) $2/3$

(C) $-2/3$

(D) None of the above

A function f and its tangent line at $(1, 4)$ are graphed on the right.



8. We run Newton's method on f starting with $x_0 = 1$. What is x_1?

(A) 1

(B) 2

(C) 3

(D) None of the above

9. True or False?

Suppose f is a continuous function. The the absolute minimum of f on the closed interval $[-1, 1]$ must occur at a critical point of f.

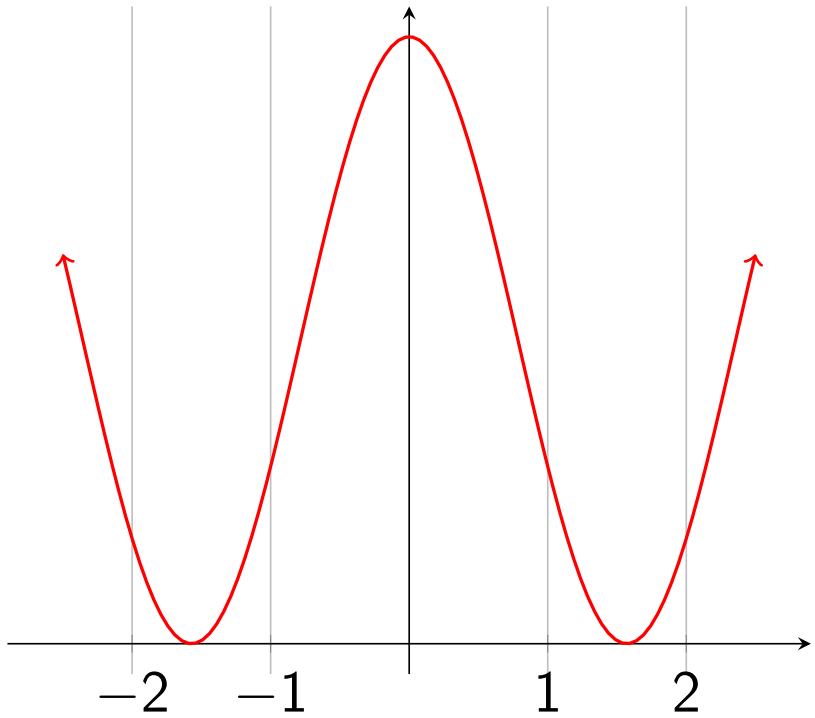
10. True or False?

The function

$$f(x) = \frac{2e^x + 2x}{e^x}$$

has a horizontal asymptote at $y = 2$.

Suppose f is the function graphed on the right.



11. How many inflection points does f have on the interval $[-2, 2]$?

(A) 1

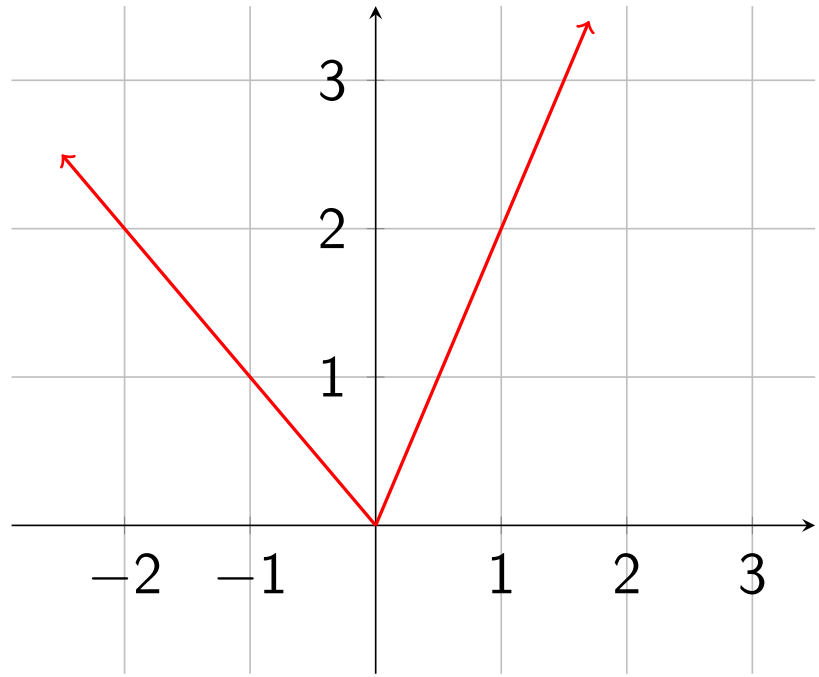
(B) 2

(C) 3

(D) None of the above

Suppose f is the function graphed on the right.

12. $\lim_{h \to 0^+} \dfrac{f(h) - f(0)}{h} = ?$



(A) -1

(B) 2

(C) Does not exist

(D) None of the above

13. True or False?

The equation $\ln(x) = 1/x$ has a solution.

14. True or False?

If f is a function such that $f''(0) = 0$, then f changes concavity at $x = 0$.