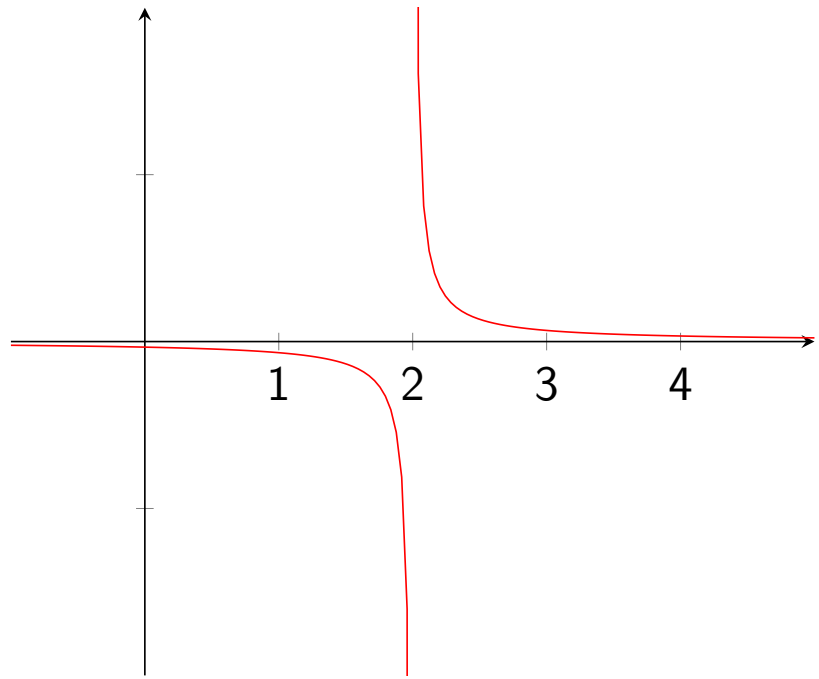
1. Which of the following accurately describes the function

$$f(x) = \frac{1}{x-2},$$

whose graph is depicted to the right?



(A) $\lim_{x \to 2} f(x) = \infty$.

(B) $\lim_{x \to 2} f(x) = -\infty$.

(C) $\lim_{x \to 2} f(x)$ does not exist.

(D) None of the above.

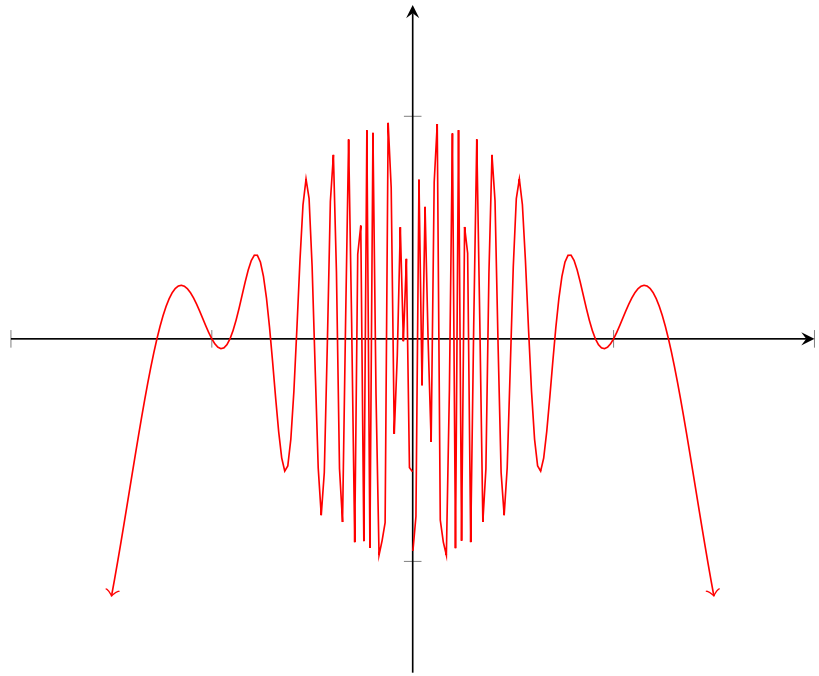
2. True or False?

$$\lim_{x \to 2^+} \frac{1}{x^2 - 4} \text{ exists.}$$

3. Which of the following accurately describes the function

$$f(x) = (1 - x^2)\cos(1/x),$$

whose graph is depicted to the right?



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

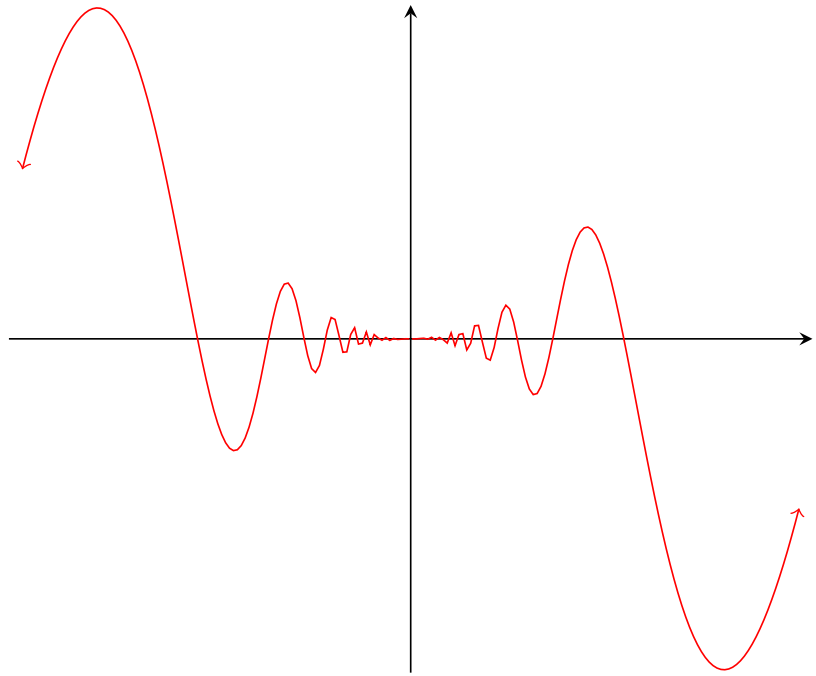
(B) $\lim_{x \to 2} f(x)$ does not exist.

(C) None of the above.

4. Which of the following accurately describes the function

$$f(x) = x^2 \sin(1/x),$$

whose graph is depicted to the right?



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

(B) $\lim_{x \to 2} f(x)$ does not exist.

(C) None of the above.

5. Which of the following accurately describes the function f given by the following formula?

$$f(x) = \begin{cases} x^2 + 1 & \text{if } x \geq 0 \\ x - 1 & \text{if } x < 0 \end{cases}$$

(A) $\lim_{x \to 0^+} f(x) = 1$.

(B) $\lim_{x \to 0^-} f(x) = -1$.

(C) $\lim_{x \to 0} f(x)$ does not exist.

(D) All of the above.

6. True or False?

Let f be the function given by the following formula.

$$f(x) = \begin{cases} x^3 - 1 & \text{if } x \neq 0 \\ 0 & \text{if } x = 0 \end{cases}$$

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

7. True or False?

$$\lim_{x \to -1} (3x^4 - 2x^3 + 4x) = -3.$$

8. True or False?

$$\lim_{x \to -\infty} \frac{3x^2 + 20x}{2x^3 + 3x^2 - 29} = \infty.$$

9. True or False?

$\lim_{x \to 2} (x^2 - 4) \cos\left(\frac{1}{x-2}\right)$ does not exist.

10. True or False?

$$\lim_{x\to\infty} \frac{3x^2 - x}{2x^2 + 5} = \lim_{t\to 0^+} \frac{3 - t}{2 + 5t^2}.$$

11. True or False?

There exist functions f and g such that $\lim_{x \to 0} f(x) + g(x)$ exists but neither $\lim_{x \to 0} f(x)$ nor $\lim_{x \to 0} g(x)$ exist.

12. True or False?

There exist functions f and g such that $\lim_{x \to 0} \dfrac{f(x)}{g(x)}$ exists but neither $\lim_{x \to 0} f(x)$ nor $\lim_{x \to 0} g(x)$ exist.

13. Which of the following is equal to $\lim_{x \to 0} \dfrac{(x^2+1)\sin(x)}{x}$?

(A) 0

(B) 1

(C) The limit does not exist.

(D) None of the above.

14. True or False?

$$\lim_{x \to \infty} \left(\sqrt{x^2 + 1} - x \right) = 0.$$