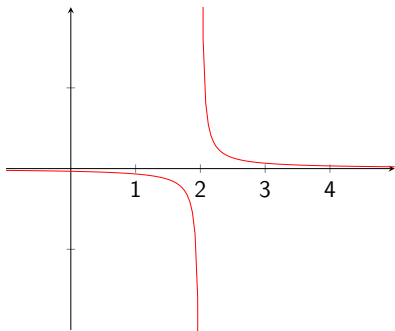


1. Which of the following accurately describes the function

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

whose graph is depicted to the right?



- (A) $\lim_{x \rightarrow 2} f(x) = \infty$.
- (B) $\lim_{x \rightarrow 2} f(x) = -\infty$.
- (C) $\lim_{x \rightarrow 2} f(x)$ does not exist.
- (D) None of the above.

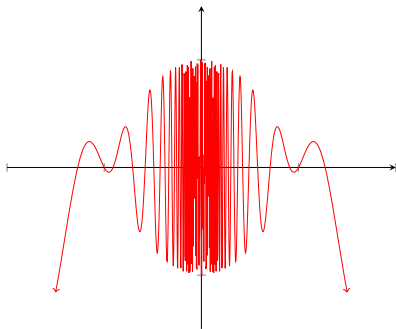
2. True or False?

$\lim_{x \rightarrow 2^+} \frac{1}{x^2 - 4}$ 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) $\lim_{x \rightarrow 0} f(x) = 0$.
- (B) $\lim_{x \rightarrow 1} f(x)$ does not exist.
- (C) None of the above.

4. 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) $\lim_{x \rightarrow 0^+} f(x) = 1.$
- (B) $\lim_{x \rightarrow 0^-} f(x) = -1.$
- (C) $\lim_{x \rightarrow 0} f(x)$ does not exist.
- (D) All of the above.

5. 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 $\lim_{x \rightarrow 0} f(x) = 0$.

6. True or False?

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

7. True or False?

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

8. True or False?

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