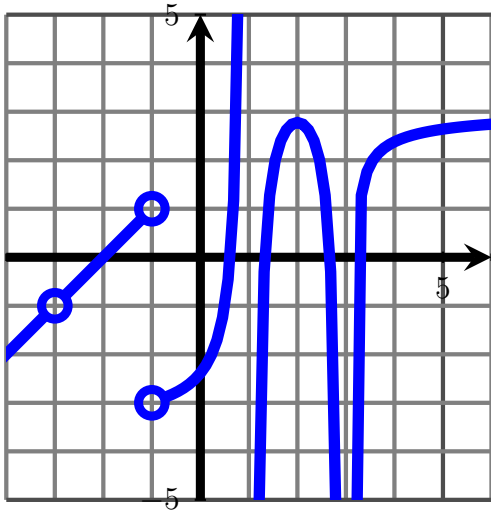


Section 1 Review

1. Answer questions about limits based on the graph below.



(A) $\lim_{x \rightarrow -3} f(x) =$

(B) $\lim_{x \rightarrow -2} f(x) =$

(C) $\lim_{x \rightarrow -1^-} f(x) =$

(D) $\lim_{x \rightarrow -1^+} f(x) =$

(E) $\lim_{x \rightarrow 1^-} f(x) =$

(F) $\lim_{x \rightarrow 1^+} f(x) =$

(G) $\lim_{x \rightarrow 3} f(x) =$

(H) $\lim_{x \rightarrow \infty} f(x) =$

2. Compute the limits below.

(A) $\lim_{x \rightarrow 1} \frac{x^2 - 3x + 1}{x^2 + x + 1}$

(B) $\lim_{x \rightarrow 1} \frac{x^2 - 3x + 2}{x^2 + x - 2}$

(C) $\lim_{x \rightarrow 1} \frac{\sqrt{x+3} - 2}{x - 1}$

(D) $\lim_{x \rightarrow 1} \frac{1 - \frac{1}{x}}{x^2 + x - 2}$

$$\text{(E)} \quad \lim_{x \rightarrow 1} (x - 1) \left(\frac{1}{x - 1} + x \right)$$

$$\text{(F)} \quad \lim_{x \rightarrow 1} \left(\frac{1}{x - 1} + \frac{1}{(x - 1)(x - 2)} \right)$$

3. Compute the limits below if $f(x) = \begin{cases} x + 1 & \text{if } x > 1 \\ 0 & \text{if } x = 1 \\ x + 2 & \text{if } x < 1 \end{cases}$

$$\text{(A)} \quad \lim_{x \rightarrow 1^-} f(x)$$

$$\text{(B)} \quad \lim_{x \rightarrow 1^+} f(x)$$

$$\text{(C)} \quad \lim_{x \rightarrow 1} f(x)$$

4. Compute the limits with absolute value below.

$$\text{(A)} \quad \lim_{x \rightarrow 1^-} \frac{|x - 1|}{x^2 - 4x + 3}$$

$$\text{(B)} \quad \lim_{x \rightarrow 1^+} \frac{|x - 1|}{x^2 - 4x + 3}$$

5. Compute the trigonometric limits below. For full credit, show all steps.

$$\text{(A)} \quad \lim_{x \rightarrow 1} \frac{\tan(2x)}{3x}$$

$$\text{(B)} \quad \lim_{x \rightarrow 0} \frac{\tan(2x)}{3x}$$

6. Compute the following limits. For full credit, show all steps.

(A) $\lim_{x \rightarrow 1^-} \frac{x^2 - 3x + 2}{x^2 - 2x + 1}$

(B) $\lim_{x \rightarrow 1^+} \frac{x^2 - 3x + 2}{x^2 - 2x + 1}$

(C) $\lim_{x \rightarrow 1^+} \frac{x^2 - 2x + 1}{x^2 - 3x + 2}$

(D) $\lim_{x \rightarrow \infty} \frac{1 + 2x - 3x^2}{4x^2 + 3x - 1}$

(E) $\lim_{x \rightarrow \infty} \frac{1 + 2x - 3x^3}{4x^2 + 3x - 1}$

7. Find the value C which makes the function continuous.

$$f(x) = \begin{cases} 3x + C & \text{if } x > 1 \\ x^2 - x & \text{if } x \leq 1 \end{cases}$$

8. Compute $\lim_{x \rightarrow 1} \sin\left(\frac{x - 1}{x^2 - 3x + 2}\right)$