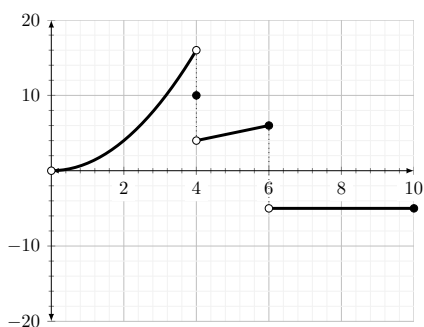


1. The function $f(x)$ is graphed below. Use the graph to fill in the blanks.



(a) $\lim_{x \rightarrow 4^-} f(x) = \underline{\hspace{2cm}}$

(b) $\lim_{x \rightarrow 4^+} f(x) = \underline{\hspace{2cm}}$

(c) $\lim_{x \rightarrow 4} f(x) = \underline{\hspace{2cm}}$

(d) $f(4) = \underline{\hspace{2cm}}$

(e) $\lim_{x \rightarrow 6^-} f(x) = \underline{\hspace{2cm}}$

(f) $\lim_{x \rightarrow 6^+} f(x) = \underline{\hspace{2cm}}$

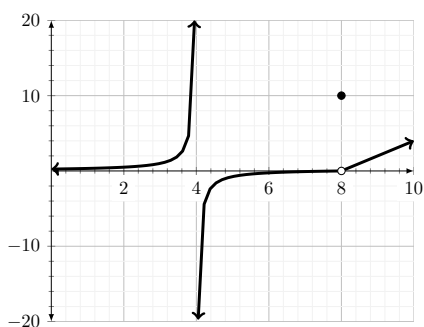
(g) $\lim_{x \rightarrow 6} f(x) = \underline{\hspace{2cm}}$

(h) $f(6) = \underline{\hspace{2cm}}$

(i) $\lim_{x \rightarrow 8} f(x) = \underline{\hspace{2cm}}$

(j) $f(8) = \underline{\hspace{2cm}}$

2. The function $g(x)$ is graphed below. Use the graph to fill in the blanks.



(a) $\lim_{x \rightarrow 4^-} g(x) = \underline{\hspace{2cm}}$

(b) $\lim_{x \rightarrow 4^+} g(x) = \underline{\hspace{2cm}}$

(c) $\lim_{x \rightarrow 4} g(x) = \underline{\hspace{2cm}}$

(d) $g(4) = \underline{\hspace{2cm}}$

(e) $\lim_{x \rightarrow 8} g(x) = \underline{\hspace{2cm}}$

(f) $g(8) = \underline{\hspace{2cm}}$

Write the equation of any vertical asymptotes:

3. Evaluate the limits below by graphing $f(x) = \begin{cases} x + 1 & x < 0 \\ x - 1 & 0 \leq x < 2 \\ 1 + \sqrt{x - 2} & 2 < x \end{cases}$

(a) $\lim_{x \rightarrow 0} f(x)$

(b) $\lim_{x \rightarrow 2} f(x)$

(c) For which values a does $\lim_{x \rightarrow a} f(x)$ exist?

4. Use a calculator and a table of values to determine the limit: $\lim_{x \rightarrow 0^+} \left(\frac{1}{x} - \ln(x) \right)$.

5. Sketch the graph of an example of a function f that satisfies *all* of the given conditions.

(a) $\lim_{x \rightarrow 0} f(x) = 1$

(b) $\lim_{x \rightarrow 3^-} f(x) = -2$

(c) $\lim_{x \rightarrow 3^+} f(x) = 4$

(d) $f(0) = 2$

(e) $f(3) = 1$

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