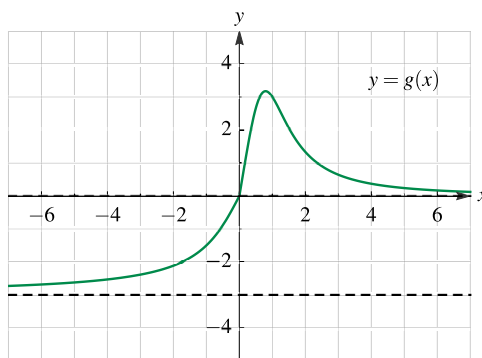
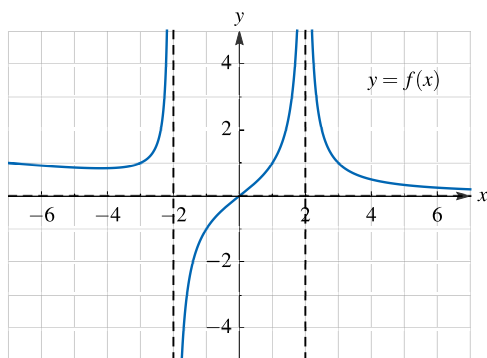


Monday Night Calculus

Limits at Infinity and Infinite Limits

9/14 Question

The graphs of the functions f and g are given in the figures. The dashed lines in the figures represent horizontal or vertical asymptotes. The x -axis is a horizontal asymptote for both graphs.



1. Use the graph of f to evaluate each limit. If a limit does not exist, explain why.

(a) $\lim_{x \rightarrow -2^-} f(x)$

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

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

(d) $\lim_{x \rightarrow 2^-} f(x)$

(e) $\lim_{x \rightarrow 2^+} f(x)$

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

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

(h) $\lim_{x \rightarrow \infty} f(x)$

2. Use the graph of g to evaluate each limit. If a limit does not exist, explain why.

(a) $\lim_{x \rightarrow -\infty} g(x)$

(b) $\lim_{x \rightarrow \infty} g(x)$

(c) $\lim_{x \rightarrow 0} g(x)$

3. Use the graphs of f and g to evaluate each limit, if it exists. If the limit does not exist, explain why. Or, explain why neither conclusion is possible.

(a) $\lim_{x \rightarrow 2^+} \frac{f(x)}{g(x)}$

(b) $\lim_{x \rightarrow 2^-} \frac{g(x)}{f(x)}$

(c) $\lim_{x \rightarrow -2} \frac{g(x)}{f(x)}$

(d) $\lim_{x \rightarrow \infty} [f(x) + g(x)]$

(e) $\lim_{x \rightarrow 0} \frac{f(x)}{g(x)}$

(f) $\lim_{x \rightarrow \infty} [f(x) \cdot g(x)]$