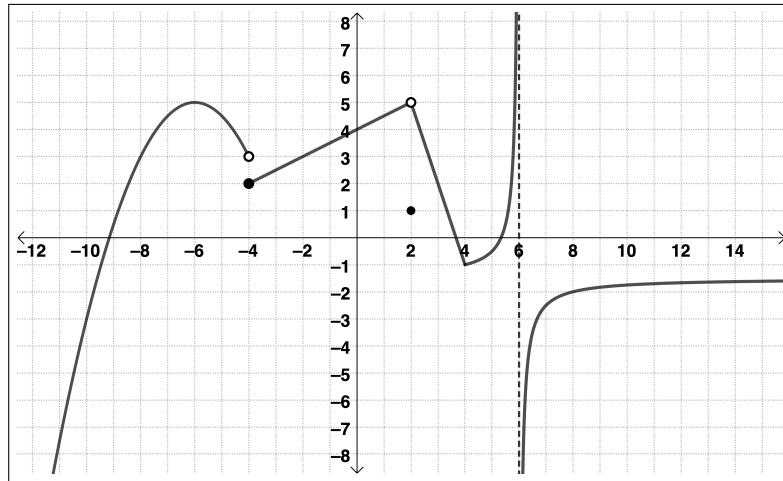




SESSION 1: SECTIONS 1-1 AND 1-2

(1) A graph of $f(x)$ is given below. Use the graph to find each of (a)-(h) below.



(a) $\lim_{x \rightarrow -4^-} f(x)$

(b) $\lim_{x \rightarrow -4^+} f(x)$

(c) $\lim_{x \rightarrow -4} f(x)$

(d) $f(-4)$

(e) $f(2)$

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

(g) $\lim_{x \rightarrow 6^+} f(x)$

(h) $\lim_{x \rightarrow 6} f(x)$

- (2) Given $f(x) = \frac{5(x+3)}{x^2+5x+6}$, estimate the following limits both graphically and numerically. Then confirm your answer by finding the limits algebraically.

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

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

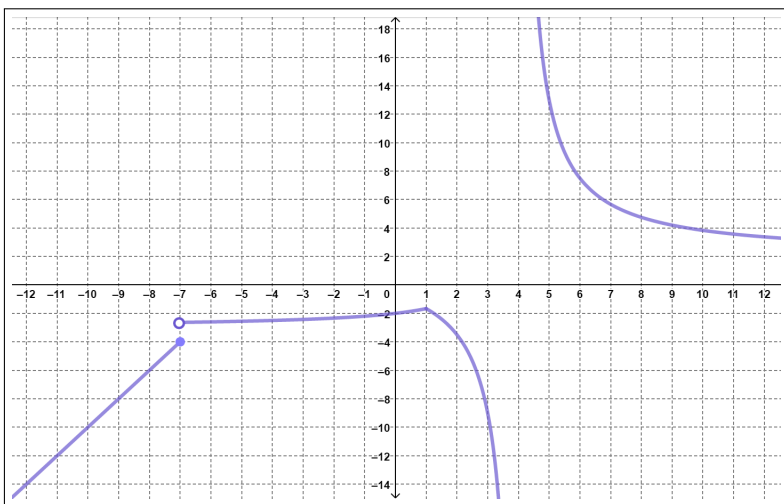
- (3) Given $h(x)$ below, find the following limits algebraically, numerically, and graphically.

$$h(x) = \begin{cases} 2x + 10 & x \leq -7 \\ \frac{3x - 8}{4 - x} & -7 < x < 1 \\ \frac{2x^2 + x - 3}{x^2 - 5x + 4} & x \geq 1 \end{cases}$$

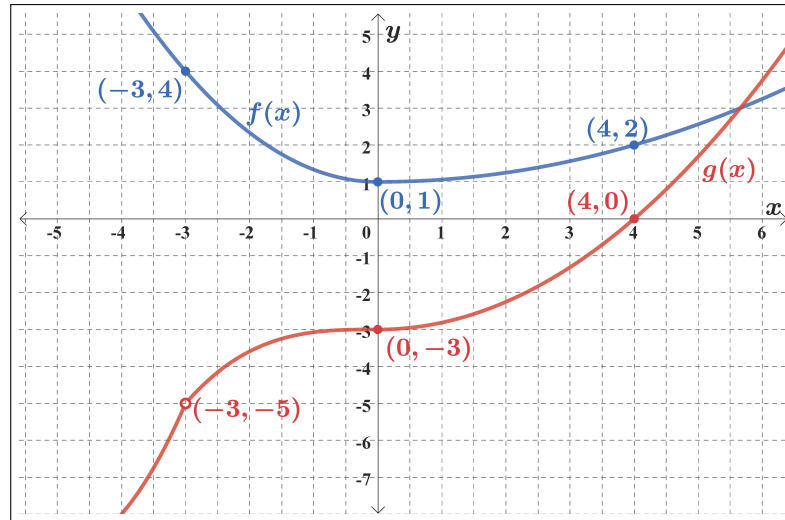
(a) $\lim_{x \rightarrow 1} h(x)$

(b) $\lim_{x \rightarrow 4} h(x)$

(c) $\lim_{x \rightarrow -7^-} h(x)$



- (4) Given the graph of $f(x)$ and $g(x)$ below find $\lim_{x \rightarrow -3} \left(2f(x) + \frac{g(x)}{x^2} + 8 \right)$.



- (5) Find the limits below algebraically.

(a) $\lim_{x \rightarrow -5} [\ln(6 + x) - 2x]$

(b) $\lim_{x \rightarrow 4} \frac{x^2 - 8}{x + 4}$

(c) $\lim_{x \rightarrow 4} \frac{x - 4}{x + 4}$

(d) $\lim_{x \rightarrow 4} \frac{x + 4}{x - 4}$

(e) $\lim_{x \rightarrow 1^-} \frac{\frac{8}{x+5} - \frac{4}{x+2}}{x - 1}$

(f) $\lim_{x \rightarrow -1/2} f(x)$ given $f(x) = \begin{cases} \frac{2x^2 - 3x - 2}{2x + 1} & x < -\frac{1}{2} \\ 2x + 7 & x > -\frac{1}{2} \end{cases}$