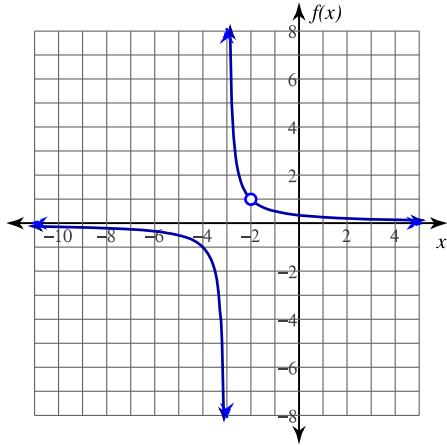


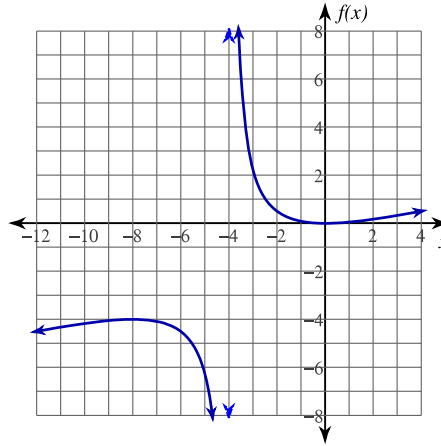
Evaluating Limits

Evaluate each limit.

1) $\lim_{x \rightarrow -3^+} \frac{x+2}{x^2+5x+6}$

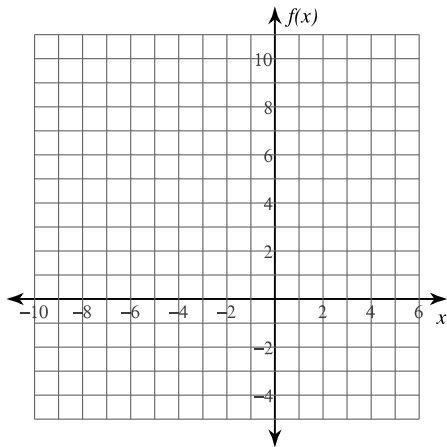


2) $\lim_{x \rightarrow -4} \frac{x^2}{4x+16}$

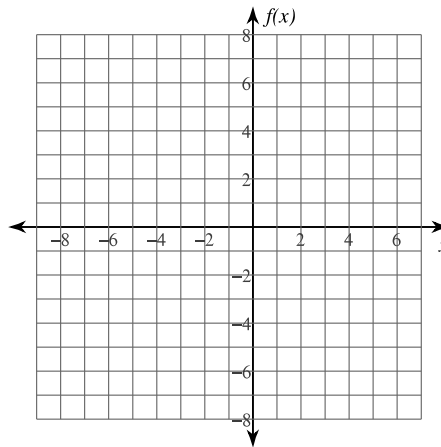


Evaluate each limit. You may use the provided graph to sketch the function.

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



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



Evaluate each limit.

$$5) \lim_{x \rightarrow -3^-} \frac{2x}{x+3}$$

$$6) \lim_{x \rightarrow -2^+} \frac{1}{x^2 - 4}$$

$$7) \lim_{x \rightarrow 3^-} -\frac{4x}{x-3}$$

$$8) \lim_{x \rightarrow 1} -\frac{3}{x-1}$$

$$9) \lim_{x \rightarrow -2^-} \frac{x+2}{x^2 + x - 2}$$

$$10) \lim_{x \rightarrow -3^-} -\frac{2}{x+3}$$

$$11) \lim_{x \rightarrow \frac{\pi}{4}^-} 2\sec(2x)$$

$$12) \lim_{x \rightarrow \frac{3\pi}{4}^+} 2\tan(2x)$$

Critical thinking questions:

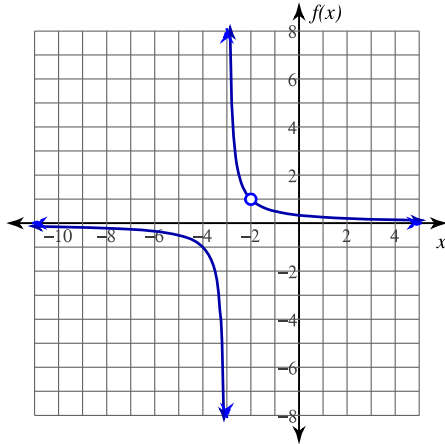
13) Give an example of a right-sided limit that goes to ∞ as x goes to 5.

14) Give an example of a left-sided limit that goes to ∞ as x goes to 5.

Evaluating Limits

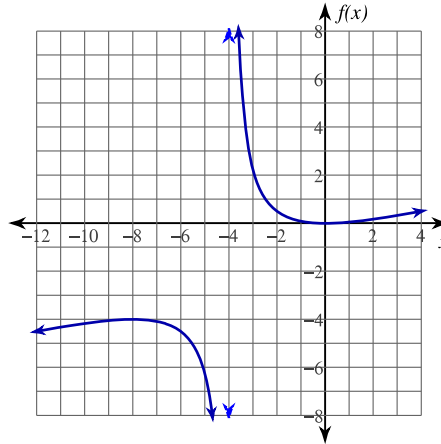
Evaluate each limit.

1) $\lim_{x \rightarrow -3^+} \frac{x+2}{x^2+5x+6}$



∞

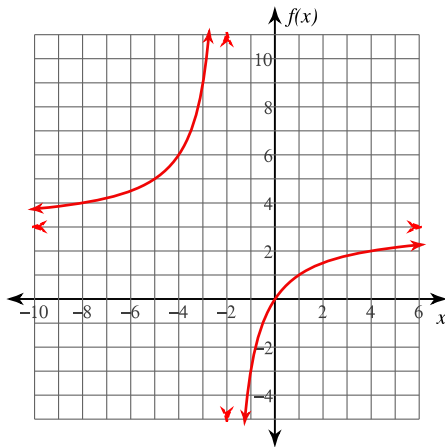
2) $\lim_{x \rightarrow -4} \frac{x^2}{4x+16}$



Does not exist.

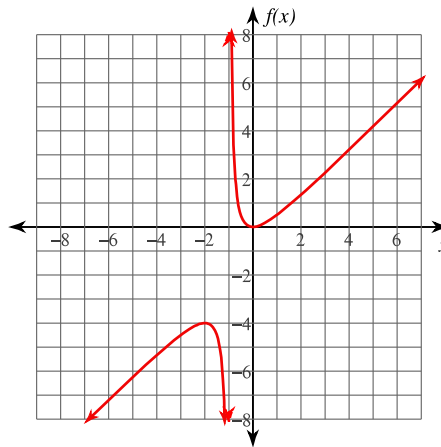
Evaluate each limit. You may use the provided graph to sketch the function.

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



$-\infty$

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



∞

Evaluate each limit.

5) $\lim_{x \rightarrow -3^-} \frac{2x}{x+3}$
 ∞

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

7) $\lim_{x \rightarrow 3^-} -\frac{4x}{x-3}$
 ∞

8) $\lim_{x \rightarrow 1} -\frac{3}{x-1}$
Does not exist.

9) $\lim_{x \rightarrow -2^-} \frac{x+2}{x^2+x-2}$
 $-\frac{1}{3}$ (distractor case, limit exists)

10) $\lim_{x \rightarrow -3^-} -\frac{2}{x+3}$
 ∞

11) $\lim_{x \rightarrow \frac{\pi}{4}^-} 2\sec(2x)$
 ∞

12) $\lim_{x \rightarrow \frac{3\pi}{4}^+} 2\tan(2x)$
 $-\infty$

Critical thinking questions:

13) Give an example of a right-sided limit that goes to ∞ as x goes to 5.

Many answers. Ex: $\lim_{x \rightarrow 5^+} \frac{1}{x-5}$

14) Give an example of a left-sided limit that goes to ∞ as x goes to 5.

Many answers. Ex: $\lim_{x \rightarrow 5^-} -\frac{1}{x-5}$