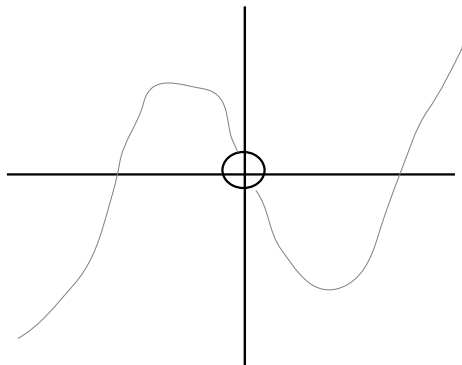


1. Deduci dai grafici i limiti indicati:

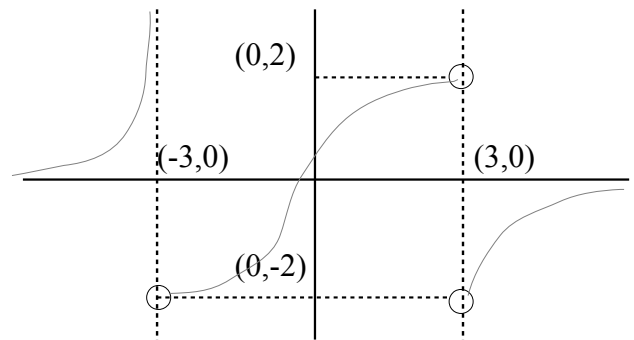
(a)



$$\lim_{x \rightarrow -\infty} f(x) = \quad \lim_{x \rightarrow -0^-} f(x) =$$

$$\lim_{x \rightarrow -0^+} f(x) = \quad \lim_{x \rightarrow +\infty} f(x) =$$

(b)



$$\lim_{x \rightarrow -\infty} f(x) = \quad \lim_{x \rightarrow -3^-} f(x) =$$

$$\lim_{x \rightarrow -3^+} f(x) = \quad \lim_{x \rightarrow 3^-} f(x) =$$

$$\lim_{x \rightarrow 3^+} f(x) = \quad \lim_{x \rightarrow +\infty} f(x) =$$

2. Disegna il grafico di una funzione che soddisfi i seguenti limiti:

(a) $\lim_{x \rightarrow -\infty} f(x) = -2$
 $\lim_{x \rightarrow 0^-} f(x) = 2$
 $\lim_{x \rightarrow 0^+} f(x) = +\infty$
 $\lim_{x \rightarrow +\infty} f(x) = -\infty$

(b) $\lim_{x \rightarrow -\infty} f(x) = 0$
 $\lim_{x \rightarrow 0^-} f(x) = 0$
 $\lim_{x \rightarrow 0^+} f(x) = +\infty$
 $\lim_{x \rightarrow 1^-} f(x) = 0$
 $\lim_{x \rightarrow 1^+} f(x) = -\infty$
 $\lim_{x \rightarrow +\infty} f(x) = -1$

3. Risolvi:

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

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

(c) $\lim_{x \rightarrow 2^-} \frac{x-2x^2+6}{x}$

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

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

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

(g) $\lim_{x \rightarrow 0^+} x + \frac{1}{x}$

(h) $\lim_{x \rightarrow -\infty} x + \frac{1}{x}$

(i) $\lim_{x \rightarrow 0^-} \left(\frac{x+1}{x^2} - \frac{1}{x} \right)$

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

4. Studia la funzione $f(x) = \frac{1-x}{x+x^2}$