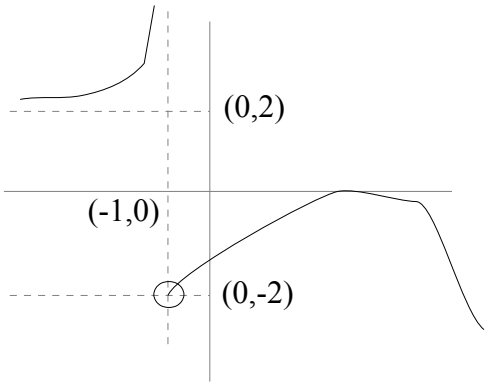
1. Deduci dai grafici i limiti indicati:

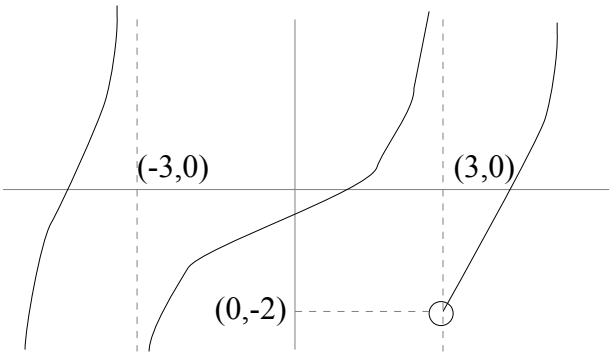
(a)



$\lim_{x\to-\infty} f(x)$ $\lim_{x\to-1^-} f(x)$

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

(b)



$\lim_{x\to-\infty} f(x)$ $\lim_{x\to-3^-} f(x)$

$\lim_{x\to-3^+} f(x)$ $\lim_{x\to3^-} f(x)$

$\lim_{x\to3^+} f(x)$ $\lim_{x\to+\infty} f(x)$

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

(a) $\lim_{x\to-\infty} f(x)=-\infty$
$\lim_{x\to0^-} f(x)=-2$
$\lim_{x\to0^+} f(x)=2$
$\lim_{x\to+\infty} f(x)=5$

(b) $\lim_{x\to-\infty} f(x)=+\infty$
$\lim_{x\to-5^-} f(x)=+\infty$
$\lim_{x\to-5^+} f(x)=-\infty$
$\lim_{x\to+\infty} f(x)=-\infty$

3. Risolvi:

(a) $\lim_{x\to0^-} \frac{1}{x^3}$

(b) $\lim_{x\to2^+} \frac{x}{x-2}$

(c) $\lim_{x\to+\infty} -2x^2+3x+5$

(d) $\lim_{x\to+\infty} \frac{2x^3-2x+1}{-3x^3+2}$

(e) $\lim_{x\to-\infty} \frac{2x^3+5x}{3x^2+3x+3}$

(f) $\lim_{x\to3^+} \frac{x^2+1}{2x^2}$

(g) $\lim_{x\to+\infty} \frac{(2x+1)(3-2x)}{x+4x^2}$

(h) $\lim_{x\to1^-} \frac{x}{x^2-2x+1}$

(i) $\lim_{x\to0^+} \frac{1}{x}-\frac{1}{x^2}$

4. Studia la funzione $f(x)=\frac{1-3x}{x-1}$