**Deber # 1**

Resolver los siguientes límites

1. $\lim\_{x\to 0}\frac{\sqrt[3]{x-1}+4\sqrt[11]{x-1}-\sqrt[13]{x-1}+4}{\sqrt[3]{x-1}-5\sqrt[5]{x-1}+7\sqrt[13]{x-1}-3}$
2. $\lim\_{x\to \infty }\left(\sqrt{4x+\sqrt{4x+\sqrt{4x}}}-2\sqrt{x}\right)$
3. $\lim\_{x\to 1}\frac{1-x^{2}}{(1+ax)^{2}-(a+x)^{2}}$
4. $\lim\_{x\to 0}\frac{x^{6}}{\left(tg x-sen x\right)^{2}}$
5. $\lim\_{x\to π}\frac{1-sen x/2}{\cos(x/2) \left(\cos(\frac{x}{4}-sen\frac{x}{4})\right)}$
6. $\lim\_{x\to 0}\left(\frac{a^{x}+b^{x}+c^{x}}{3}\right)^{\frac{1}{x}}$
7. $\lim\_{x\to 0}\frac{x^{3}+9x^{2}+20x}{x^{2}+x-12}$
8. Verificar que exista el límite $\lim\_{x\to 27}f(x)$

$$f\left(x\right)=\left\{\begin{array}{c}\frac{\sqrt[3]{x}+\sqrt{\frac{x}{3}}-x+21}{x-27}\\\frac{\sqrt[3]{x}-3+2(x-27)}{x-27}\end{array}\right.$$

1. Halle las asíntotas.

$$f\left(x\right)=\frac{x^{2}-x^{3}+1}{x^{2}+1}+\sqrt{x^{2}+4}$$

1. Compruebe si la función es continua

$$f\left(x\right)=\left\{\begin{array}{c}\frac{2sen x+3sen^{2}x}{x+2x^{4}}, x\ne 0\\2 , x=0\end{array}\right.$$