

Ejercicio 1

$$\lim_{n \rightarrow \pm\infty} \left(\frac{(n+1)^2}{n} - \frac{n^3}{(n-1)^2} \right) \rightarrow 0$$

$$\lim_{n \rightarrow \pm\infty} \left((n^2+7) \cdot \frac{2n-1}{\sqrt{n^4-n^3}} \right) \rightarrow \pm\infty$$

$$\lim_{x \rightarrow 0} \frac{\exp(x) - \exp(\sin(x))}{x - \sin(x)} \rightarrow 1$$

Ejercicio 2

$$\left((1+\sqrt{1+x})^{\frac{3}{2}} - 3 \cdot (1+\sqrt{1+x})^{\frac{1}{2}} \right)' \rightarrow \frac{3}{4 \cdot \sqrt{\sqrt{x+1}+1}}$$

$$\left(\operatorname{atan}\left(\frac{x-1}{x+1}\right) \right)' \rightarrow \frac{1}{x^2+1}$$

$$(x^2 \cdot \exp(2x) \cdot \cos(3x))' \\ \rightarrow (2 \cdot x^2 + 2 \cdot x) \cdot e^{2 \cdot x} \cdot \cos(3 \cdot x) - 3 \cdot x^2 \cdot e^{2 \cdot x} \cdot \operatorname{sen}(3 \cdot x)$$

Ejercicio 3

representar($x \cdot \sin(x)$, -4..4) \rightarrow tablero1

representar(absoluto($x^2 - 6x + 5$), -5..5) \rightarrow tablero1

representar($\frac{x}{\sqrt[3]{x^2-1}}$, -10..10) \rightarrow tablero1

Ejercicio 4

$$t(x) := \frac{\sqrt{9+x^2}}{4} + \frac{5-x}{6} \rightarrow x \mapsto \frac{\sqrt{9+x^2}}{4} + \frac{5-x}{6}$$

$$t'(x) \rightarrow \frac{-2 \cdot \sqrt{x^2+9} + 3 \cdot x}{12 \cdot \sqrt{x^2+9}}$$

$$\text{resolver}(t'(x)=0.) \rightarrow \{\{x=2.6833\}\}$$

$$t''(2.6833) \rightarrow 0.034507$$

$$t(0.) \rightarrow 1.5833$$

$$t(2.6833) \rightarrow 1.3924$$

$$t(5.) \rightarrow 1.4577$$

Ejercicio 5

$$\int \frac{1}{x \cdot \ln(x)} dx \rightarrow \ln(|\ln(x)|)$$

$$\int x \cdot (\tan(x))^2 dx \rightarrow \ln(\cos(x)) + \left(x \cdot \tan(x) - \frac{x^2}{2} \right)$$

Ejercicio 6

$$\text{representar}(x^2, x) \rightarrow \text{tablero1}$$

$$\text{representar}(2x, x) \rightarrow \text{tablero1}$$

$$\text{resolver}(x^2=2x) \rightarrow \{\{x=0\}, \{x=2\}\}$$

$$\int_0^2 (2x - x^2) dx \rightarrow \frac{4}{3}$$

$$\int_0^2 (2x - x^2) dx \rightarrow 1.3333$$

Ejercicio 7

$$\pi \int_0^{\pi} (\sin(x))^2 dx \rightarrow \frac{\pi^2}{2}$$

$$\pi \int_0^{\pi} (\sin(x))^2 dx \rightarrow 4.9348$$