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Hoja de Trabajo No. 1

① $\lim_{t\to 0} r(t) = \langle \frac{t+1}{t-1}, \frac{\sqrt{9+t}-3}{t}, t^3+1 \rangle$

Para $\hat{i}$ $\lim_{t\to 0} \frac{t+1}{t-1} = \frac{0+1}{0-1} = -1$

Para $\hat{j}$ $\lim_{t\to 0} \frac{\sqrt{9+t}-3}{t} * \frac{\sqrt{9+t}-3}{\sqrt{9+t}-3} = \lim_{t\to 0} \frac{\sqrt{9+t}-3-3(\sqrt{9+t}+3)}{t\sqrt{9+t}+3} = \lim_{t\to 0} \frac{9+t+3\sqrt{9+t}-3\sqrt{3+t}}{1\sqrt{9+t}+3}$

$\lim_{t\to 0} = \frac{1}{\sqrt{9+t}-3} = \frac{1}{\sqrt{9+0}+3} = \frac{1}{6} = 0.16666$

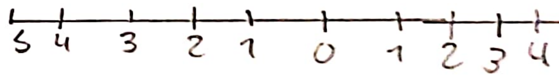
Para $\hat{k}$ $\lim_{t\to 0} t^3+1 = 0^3+1 = 1$

$$\boxed{\lim_{t\to 0} \langle -1, 0.1667, 1 \rangle}$$

② Dominio de $R(t) = \langle t \operatorname{sen} t \operatorname{sen}(t+1), \sqrt{6-t}, \cos(t-1) \rangle$

Para $\hat{i}$ $t+1$
ℝ todos los N reales
$\{t \mid t = \mathbb{R}\}$
$(-\infty, \infty)$

$-\infty$ 0 ∞ $(-\infty, \infty)$
$-\sqrt{6}$ 0 $\sqrt{6}$ $[-\sqrt{6}, \sqrt{6}]$
0 $(-\infty, \infty)$



Para $\hat{j}$ $\sqrt{6-t^2}$
$6-t^2 \geq 0$
$-t^2 \geq -6$
$t^2 \leq 6$
$t \leq \pm\sqrt{6}$

$-\sqrt{6} \leq t \leq \sqrt{6}$
$[-\sqrt{6}, \sqrt{6}]$

2,4498

$$\boxed{[-2.4495, 2.4495]}$$