a)

Conjunto soporte:

$$\Omega = \{(x_0, f(x_0)), (x_1, f(x_1)), (x_2, f(x_2))\}$$

$$L_0(x) = \frac{(x-x_1)}{(x_0-x_1)} \frac{(x-x_2)}{(x_0-x_2)}$$

$$L_1(x) = \frac{(x-x_0)}{(x_1-x_0)} \frac{(x-x_2)}{(x_1-x_2)}$$

$$L_2(x) = \frac{(x-x_0)}{(x_2-x_0)} \cdot \frac{(x-x_1)}{(x_2-x_1)}$$

$$P_2(x) = y_0 \frac{(x-x_1)}{(x_0-x_1)} \frac{(x-x_2)}{(x_0-x_2)} + y_1 \frac{(x-x_0)}{(x_1-x_0)} \frac{(x-x_2)}{(x_1-x_2)} + y_2 \frac{(x-x_0)}{(x_2-x_0)} \cdot \frac{(x-x_1)}{(x_2-x_1)}$$

$$P_2(x) = f(x_0) \frac{(x-x_1)}{(x_0-x_1)} \frac{(x-x_2)}{(x_0-x_2)} + f(x_1) \frac{(x-x_0)}{(x_1-x_0)} \frac{(x-x_2)}{(x_1-x_2)} + f(x_2) \frac{(x-x_0)}{(x_2-x_0)} \cdot \frac{(x-x_1)}{(x_2-x_1)}$$

b)

$$P_2'(x) = y_0 (x-x_1)(x-x_2)$$

$$x_0^2 - x_0 x_2 - x_1 x_0 + x_1 x_2$$

$$2x_0 - x_2 + x_1$$

$$2x_0 + \underbrace{x_1 - x_2}_{h} \rightarrow 2x_0 + h.$$

$$f'(x) \cong \frac{1}{2h} (-3f(x) + 4f(x+h) - f(x+2h))$$

e) $f(x) = \sqrt{\tan(x)} = (\tan(x))^{\frac{1}{2}}$ $\qquad \frac{d}{dx}(\tan(x)) = \sec^2(x)$

$$f'(x) = \frac{1}{2} \cdot (\tan(x))^{-\frac{1}{2}} \cdot (\tan x)'$$

$$f'(x) = \frac{1}{2\tan^{\frac{1}{2}}(x)} \cdot \sec^2(x) \longrightarrow f'(x) = \frac{\sec^2(x)}{2\tan^{\frac{1}{2}}(x)} = \frac{\frac{1}{\cos^2(x)}}{2\tan^{\frac{1}{2}}(x)}$$

f. Da diferente ambos resultados, ya que las

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