d) $f(x) = \dfrac{x}{(1+x^2)^2}$

$$f'(x) = \frac{(1+x^2)^2 - x \cdot 2(1+x^2) \cdot 2x}{(1+x^2)^4} = \frac{1+2x^2+x^4-4x^2-4x^4}{(1+x^2)^4}$$

$$= \frac{1-2x^2-3x^4}{(1+x^2)^4} = 0 \Rightarrow 1-2x^2-3x^4 = 0$$

$x^2 = y$ $\qquad 1-2y-3y^2 = 0 \Rightarrow y = \dfrac{2 \pm \sqrt{4+12}}{-6}$

$y = \dfrac{2 \pm 4}{-6} \Rightarrow y_1 = -1 \quad y_2 = \dfrac{1}{3} \,.\; x = \pm\sqrt{\dfrac{1}{3}} \cong \pm 0,58$

Intervalos	sinal	conclusão
$(-\infty, -\sqrt{1/3})$	$-$	f(x) decrescente
$(-\sqrt{1/3}, \sqrt{1/3})$	$+$	f(x) é crescente
$(\sqrt{1/3}, +\infty)$	$-$	f(x) é decrescente

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

$$\frac{-\sqrt{\frac{1}{3}}}{16/9} = \frac{-1}{\sqrt{3}} \cdot \frac{9}{16} \cong -0,32$$

é um mínimo local.

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

$= \sqrt{\dfrac{1}{3}} \cdot \dfrac{9}{16} \cong 0,32$ é um máximo local.