

81 b
 $\text{erke}(i)$

$$\int_{\mathbb{R}} \frac{x^2}{1+x^4} dx = 2\pi i \left(\frac{1}{2\sqrt{2}(1+i)} + \frac{1}{2\sqrt{2}(i-1)} \right) =$$



$$x^4 = -1$$

$$= \frac{\pi i}{\sqrt{2}} \left(\frac{1}{i+1} + \frac{1}{i-1} \right) = \frac{\sqrt{2}}{2} \pi$$

$$w_0 = \frac{\sqrt{2}}{2} + i \frac{\sqrt{2}}{2}$$

$$w_1 = \frac{-\sqrt{2}}{2} + i \frac{\sqrt{2}}{2}$$

$$w_2 = -w_0$$

$$w_3 = -w_1$$

$$\text{res}(f, w_0) = \lim_{z \rightarrow w_0} \left(\frac{z^2}{(z-w_1)(z-w_2)(z-w_3)} \right) =$$

$$= \frac{1}{2\sqrt{2}(1+i)}$$

$$\text{res}(f, w_1) = \frac{1}{2\sqrt{2}(i-1)}$$