2) $\int \operatorname{arctg}(\sqrt{x}) \cdot dx$ tem-se que: $u = \operatorname{arctg}\sqrt{x}$

$\int u \cdot dv = u \cdot v - \int v \cdot du$

$\therefore \dfrac{du}{dx} = \dfrac{1}{2\sqrt{x}} \cdot \dfrac{1}{(1+x)}$

$du = \dfrac{dx}{2\sqrt{x}\,(1+x)}$

$\operatorname{arctg}\sqrt{x} \cdot x - \int x \cdot \dfrac{dx}{2\sqrt{x}(1+x)}$

$dx = dv \Rightarrow x = v$

$x \operatorname{arctg}\sqrt{x} - \int \dfrac{w^2 \cdot \cancel{2\sqrt{x}} \cdot dw}{\cancel{2\sqrt{x}} \cdot (1+w^2)}$

$w = \sqrt{x}$

$\dfrac{dw}{dx} = \dfrac{1}{2\sqrt{x}}$

$dx = 2\sqrt{x} \cdot dw$

$x \cdot \operatorname{arctg}\sqrt{x} - \int \dfrac{w^2}{(1+w^2)} \cdot dw$

$x \cdot \operatorname{arctg}\sqrt{x} - \int \left[\dfrac{1+w^2}{\cancel{1}+w^2} - \dfrac{1}{1+w^2} \right] \cdot dw$

$x \cdot \operatorname{arctg}\sqrt{x} - \int dw + \int \dfrac{1}{1+w^2}\, dw$

$x \cdot \operatorname{arctg}\sqrt{x} - \sqrt{x} + \operatorname{arctg} w + C$

$x \cdot \operatorname{arctg}\sqrt{x} - \sqrt{x} + \operatorname{arctg}\sqrt{x} + C$