

$$\int \frac{1}{\sqrt{1+\sqrt{1+x}}} dx =$$

CAMBIO DE VARIABLE
C.V. 1

$$1+x = t^2$$

$$dx = 2t dt$$

$$= \int \frac{1}{\sqrt{1+\underbrace{\sqrt{t^2}}_t}} 2t dt =$$

$$\int \frac{1}{\sqrt{1+t}} 2t dt = 2 \int \frac{t}{\sqrt{1+t}} dt =$$

CAMBIO DE VARIABLE
C.V. 2

$$1+t = z^2 \rightarrow t = z^2 - 1$$

$$dt = 2z dz$$

$$= 2 \int \frac{z^2 - 1}{\underbrace{\sqrt{z^2}}_z} 2z dz =$$

$$= 4 \int \frac{z^2 - 1}{z} dz = 4 \int (z^2 - 1) dz =$$

$$= 4 \left(\frac{z^3}{3} - z \right) + C = 4 \left(\frac{(\underbrace{z}_{\substack{\text{DESHACER} \\ \text{C.V. 2}}}}{\sqrt{1+t}})^3 - \sqrt{1+t} \right) + C =$$

$$= 4 \left(\frac{(\sqrt{1+\sqrt{1+x}})^3}{3} - \sqrt{1+\sqrt{1+x}} \right) + C$$