$$\int \frac{\sin^{-1} x}{\sqrt{1-x^2}}\,dx$$

Solution

Let $u = \sin^{-1} x$. Then

$$du = \frac{1}{\sqrt{1-x^2}}\,dx$$

so

$$\int \frac{\sin^{-1} x}{\sqrt{1-x^2}}\,dx = \int u\,du = \frac{u^2}{2} + C = \frac{(\sin^{-1} x)^2}{2} + C.$$