

$$\int \underbrace{\frac{u}{2}}_v \underbrace{\arcsin(u^2)}_w du = \frac{u^2}{2} \cdot \arcsin(u^2) - \int \frac{u^2}{2} \cdot \frac{2u}{\sqrt{1-u^4}} du$$

$$\begin{aligned} p[u] = \frac{u^2}{2} \quad \left| \quad \right. &= \frac{u^2}{2} \arcsin(u^2) - \frac{1}{4} \int 4u^3 \cdot (1-u^4)^{-1/2} du \\ q' &= \frac{2u}{\sqrt{1-(u^2)^2}} \quad \left| \quad \right. &= \frac{u^2}{2} \arcsin(u^2) - \frac{1}{4} \frac{(1-u^4)^{-\frac{1}{2}+1}}{-\frac{1}{2}+1} + C \\ &= \frac{u^2}{2} \arcsin(u^2) - \frac{1}{4} \frac{(1-u^4)^{1/2}}{\frac{1}{2}} + C \end{aligned}$$

$$= \frac{u^2}{2} \arcsin(u^2) - \frac{1}{2} \sqrt{1-u^4} + C, C \in \mathbb{R}$$