

$$\text{Arccos}(x) - \text{Arccos}(k) = 2 \text{Arctan}(2x) - \frac{\pi}{2}$$

$$\Leftrightarrow \sin(\text{Arccos}(x)) \cos(\text{Arccos}(k)) - \sin(\text{Arccos}(k)) \cos(\text{Arccos}(x)) = \sin\left(2 \text{Arctan}(2x) - \frac{\pi}{2}\right)$$

$$\Leftrightarrow x^2 - \left(\sqrt{1-x^2}\right)^2 = -\cos\left(2 \text{Arctan}(2x)\right)$$

$$\Leftrightarrow x^2 - 1 + x^2 = \sin^2\left(\text{Arctan}(2x)\right) - \cos^2\left(\text{Arctan}(2x)\right)$$

$$\Leftrightarrow 2x^2 - 1 = \frac{(2x)^2}{1+(2x)^2} - \frac{1}{1+(2x)^2}$$

$$\Leftrightarrow 2x^2 - 1 = \frac{4x^2 - 1}{1+4x^2}$$

$$\Leftrightarrow (2x^2 - 1)(4x^2 + 1) = 4x^2 - 1$$

$$\Leftrightarrow 8x^4 + 2x^2 - 4x^2 = 4x^2 - 1$$

$$\Leftrightarrow 8x^4 - 6x^2 = 0 \quad \begin{matrix} -2\pi - \frac{\pi}{2} \\ 3 \\ c \end{matrix}$$

$$\Leftrightarrow 2x^2(4x^2 - 3) = 0 \quad -4\pi - 3$$

$$\Leftrightarrow x^2 = 0 \quad \text{ou} \quad 4x^2 - 3 = 0$$

$$\Leftrightarrow x = 0 \quad \text{ou} \quad x = \frac{\sqrt{3}}{2} \quad \text{ou} \quad x = -\frac{\sqrt{3}}{2}$$

$$S = \left\{ -\frac{\sqrt{3}}{2}, 0, \frac{\sqrt{3}}{2} \right\}$$