Let $u = 7\arccos x$, $dv = dx$ $\Rightarrow$ $du = -\dfrac{7dx}{\sqrt{1-x^2}}$, $v = x$.

Then $I = \int_0^{1/2} 7\arccos x \, dx = [7x\arccos x]_0^{1/2} + 7\int_0^{1/2} \frac{x\,dx}{\sqrt{1-x^2}}$

$= \frac{7}{2} \cdot \frac{\pi}{3} + 7\int_1^{3/4} t^{-1/2} \left[-\frac{1}{2}dt\right]$, where $t = 1 - x^2$ $\Rightarrow$ $dt = -2x\,dx$.

Thus, $I = \frac{7\pi}{6} + \frac{7}{2}\int_{3/4}^1 t^{-1/2}\,dt = \frac{7\pi}{6} + 7\left[\sqrt{t}\right]_{3/4}^1 = \frac{7\pi}{6} + 7 - 7\frac{\sqrt{3}}{2}$

$= \frac{7}{6}\left(\pi + 6 - 3\sqrt{3}\right).$