$$\int_0^{\pi/2} \frac{1}{2} \cos(x)^2 \, dx \quad = \quad \frac{1}{2} \int_0^{\pi/2} \cos(x)^2 \, dx$$

$$= \frac{1}{2} \int \frac{\cos(2x) + 1}{2} \, dx \quad = \quad \frac{1}{2} \int \frac{1}{2} \cos(2x) + \frac{1}{2}$$

$$= \frac{1}{2} \left(\frac{1}{2} \sin(2x) + \frac{1}{2} x \right)$$

$$= \left[\frac{1}{4} \sin(2x) + \frac{1}{4} x \right] \Bigg|_0^{\pi/2}$$

$$= \left(\frac{1}{4} \sin\left(\frac{2\pi}{2} \right) + \frac{1}{4} \left(\frac{\pi}{2} \right) \right) - \left(\frac{1}{4} \sin(0) + \frac{1}{4} (0) \right)$$

$$= 0 + \frac{\pi}{8} - 0 - 0$$

$$= \frac{\pi}{8} = 0.39$$