

$$\begin{aligned}
 & \stackrel{-44}{(116)} \quad \lim_{x \rightarrow 0} \frac{1 - \cos x \sqrt{\cos 2x}}{x^2} \cdot \frac{1 + \cos x \sqrt{\cos 2x}}{1 + \cos x \sqrt{\cos 2x}} = \lim_{x \rightarrow 0} \frac{1 - \cos^2 x \cdot \cos 2x}{x^2 (1 + \cos x \sqrt{\cos 2x})} = \lim_{x \rightarrow 0} \frac{1 - \cos^2 x (1 - 2\sin^2 x)}{x^2 (1 + \cos x \sqrt{\cos 2x})} = \frac{1 - \cos^2 x + 2\sin^2 x \cos^2 x}{x^2 (1 + \cos x \sqrt{\cos 2x})} \\
 & = \lim_{x \rightarrow 0} \frac{\sin^2 x + 2\sin^2 x \cos^2 x}{x^2 (1 + \cos x \sqrt{\cos 2x})} = \lim_{x \rightarrow 0} \frac{\sin^2 x (1 + 2\cos^2 x)}{x^2 (1 + \cos x \sqrt{\cos 2x})} = \lim_{x \rightarrow 0} \frac{1 + 2\cos^2 x}{1 + \cos x \sqrt{\cos 2x}} = \frac{1+2}{1+1} = \frac{3}{2}
 \end{aligned}$$