

$$\begin{aligned}
 \textcircled{a} \quad \lim_{h \rightarrow 0} \frac{\sqrt{\sin(x+h)} - \sqrt{\sin x}}{h} &= \lim_{h \rightarrow 0} \frac{(\sqrt{\sin(x+h)} - \sqrt{\sin x})(\sqrt{\sin(x+h)} + \sqrt{\sin x})}{h(\sqrt{\sin(x+h)} + \sqrt{\sin x})} = \\
 \lim_{h \rightarrow 0} \frac{\sin(x+h) - \sin x}{h(\sqrt{\sin(x+h)} + \sqrt{\sin x})} &= \lim_{h \rightarrow 0} \frac{2 \sin \frac{h}{2} \cos(x + \frac{h}{2})}{h(\sqrt{\sin(x+h)} + \sqrt{\sin x})} = \frac{\cos x}{2\sqrt{\sin x}}
 \end{aligned}$$