$$
\begin{aligned}
& f(x)=\sqrt{x^{2}+3} \text { and } g(r)=\int_{5}^{r} \sqrt{x^{2}+3} d x, \text { so by FTC1, } \\
& g^{\prime}(r)=f(r)=\sqrt{r^{2}+3} .
\end{aligned}
$$

