Exercise 9

Find the derivative of the function.

$$f(x) = \sqrt{5x + 1}$$

Solution

Take the derivative using the chain rule.

$$
\begin{aligned}
f'(x) = \frac{df}{dx} &= \frac{d}{dx}\left[(5x+1)^{1/2}\right] \\
&= \frac{1}{2}(5x+1)^{-1/2} \cdot \frac{d}{dx}(5x+1) \\
&= \frac{1}{2}(5x+1)^{-1/2} \cdot (5) \\
&= \frac{5}{2\sqrt{5x+1}}
\end{aligned}
$$