Example

Find the differential of the function

\[ y = \tan \sqrt{t}. \]

Solution:

\[
\begin{align*}
dy & = y'(t) \, dt \\
 &= \sec^2 \sqrt{t} \cdot (\sqrt{t})' \, dt \\
&= \sec^2 \sqrt{t} \cdot \frac{1}{2\sqrt{t}} \, dt.
\end{align*}
\]