7. $y = \tan\sqrt{x} + \sqrt[3]{\sec x}$

$y = \tan\sqrt{x} + (\sec x)^{\frac{1}{3}}$

$y' = \sec^2\sqrt{x} \cdot \frac{d}{dx}(\sqrt{x}) + \frac{1}{3}(\sec x)^{\frac{1}{3}-1} \cdot \frac{d}{dx}(\sec x)$

$= \sec^2\sqrt{x} \cdot \frac{d}{dx}\left(x^{\frac{1}{2}}\right) + \frac{1}{3}(\sec x)^{-\frac{2}{3}} \cdot \sec x \tan x$

$= \sec^2\sqrt{x} \cdot \frac{1}{2}x^{\frac{1}{2}-1} + \frac{\sec x \tan x}{3(\sec x)^{2/3}}$

$= \sec^2\sqrt{x} \cdot \frac{1}{2}x^{-\frac{1}{2}} + \frac{(\sec x)^1 \tan x}{3(\sec x)^{2/3}}$

$= \frac{\sec^2\sqrt{x}}{2x^{1/2}} + \frac{(\sec x)^{1/3}\tan x}{3}$

$= \frac{3\sec^2\sqrt{x}}{6x^{1/2}} + \frac{2x^{1/2}(\sec x)^{\frac{1}{3}}\tan x}{6x^{1/2}}$

$= \boxed{\frac{3\sec^2\sqrt{x} + 2\sqrt{x}\sqrt[3]{\sec x}\tan x}{6\sqrt{x}}}$