15. $f(x) = \underbrace{\tan x}_{P}\underbrace{[\sin x - \cos x]}_{Q}$ $\left(\frac{\pi}{4}, 0\right)$ $\quad x = \frac{\pi}{4}$

(1) $P' = \sec^2 x \quad Q' = \cos x - (-\sin x)$

$= \cos x + \sin x$

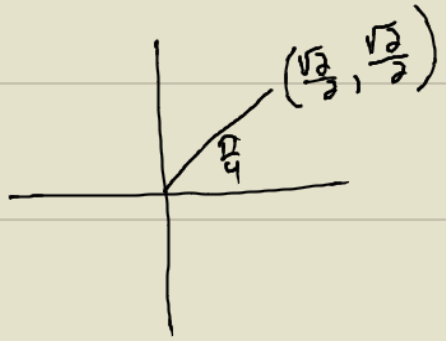
$P'Q + PQ'$

$f'(x) = \sec^2 x (\sin x - \cos x) + \tan x (\cos x + \sin x)$

(2) $m = \sec^2\left(\frac{\pi}{4}\right)\left(\sin\frac{\pi}{4} - \cos\frac{\pi}{4}\right) + \tan\frac{\pi}{4}\left(\cos\frac{\pi}{4} + \sin\frac{\pi}{4}\right)$

"$\frac{1}{x}$" "$\frac{y}{x}$"

$m = \left(\frac{1}{\frac{\sqrt{2}}{2}}\right)^2\left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right) + \left(\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}}\right)\left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\right)$



$m = 1\left(\frac{2\sqrt{2}}{2}\right)$

$m = \sqrt{2}$