MTH 251
LAB §3.3

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1. Find $\dfrac{d}{dy}\left(\sqrt{y}\cos y\right)$
2. Find $f'(y)$ if $f(y) = 2\sin y e^y$
3. Find $\frac{d}{dx}\left(\dfrac{\tan x}{x^2+1}\right)$
4. Find y' if $y = 2\sin t\cos t$
5. Find the equation of the line tangent to $y = \sin x$ at the point $(0,0)$.
6. Find the equation of the line tangent to $y = \sin x$ at the point $\left(\frac{\pi}{4}, \frac{\sqrt{2}}{2}\right)$.
7. Find the equation of the line tangent to $y = \sin x$ at the point $\left(\frac{\pi}{2}, 1\right)$.
8. Find the equation of the line tangent to $y = 2\sin x\cos x$ at the point $(\pi, 0)$.
9. Find $\dfrac{dy}{dx}$ if $y = x^2\sin x\sec x$
10. Find $\dfrac{dy}{dx}$ if $y = \dfrac{7e^x}{\cot x}$
11. Find $g'(t)$ if $g(t) = \dfrac{2\csc t}{3t^2}$
12. Find $\frac{d}{dx}\left(\dfrac{5\cot x}{\sqrt[3]{x}}\right)$