50) $h(x) = \sec(x^3)$ or $h(x) = \sec^2 x$

$h'(x) = [\sec x^2 \tan x^2](2x)$ | $h'(x) = [2\sec x]\sec x \tan x$

$= 2\sec^2 x \tan x$

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54) $g(\theta) = \sec(\frac{1}{2}\theta)\tan(\frac{1}{2}\theta)$

$g'(\theta) = \frac{1}{2}\sec(\frac{1}{2}\theta)\tan(\frac{1}{2}\theta)\cdot\tan(\frac{1}{2}\theta) + \frac{1}{2}\sec(\frac{1}{2}\theta)\cdot\sec^2(\frac{1}{2}\theta)$

$= \frac{1}{2}\sec(\frac{1}{2}\theta)\tan^2(\frac{1}{2}\theta) + \frac{1}{2}\sec^3(\frac{1}{2}\theta)$

$= \frac{1}{2}\sec(\frac{1}{2}\theta)\left[\tan^2(\frac{1}{2}\theta) + \sec^2(\frac{1}{2}\theta)\right]$

52) $y = \cos\left[(1-2x)^2\right]$

$y = -\sin\left[(1-2x)^2\right]\,2(1-2x)^1(-2)$

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56) $g(v) = \frac{\cos v}{\csc v} = \frac{\cos v}{\frac{1}{\sin v}} = \cos v \sin v$

$(-\sin v)\sin v + \cos v(\cos v)$

$-\sin^2 v + \cos^2 v$

62) $h(t) = 2\cot^2(\pi t + 2)$

$h'(t) = 4\cot(\pi t+2)\left[-\csc^2(\pi t+2)\right](\pi)$

$= -4\pi \underbrace{\cot}_{\frac{\cos}{\sin}}(\pi t+2)\underbrace{\csc^2}_{\frac{1}{\sin^2}}(\pi t+2)$

$= -\frac{4\pi\cos(\pi t+2)}{\sin^3(\pi t+2)}$

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64) $y = 3x - 5\cos\left[(\pi x)^2\right]$

$\frac{dy}{dx} = 3 + 5\underbrace{\sin}_{-\sin}\left[(\pi x)^2\right]2(\pi x)^1(\pi)$

66) $y = \sin\sqrt[3]{x} + \sqrt[3]{\sin x}$ $\qquad \sin^2 x = (\sin x)^2$

$\frac{dy}{dx} = \cos\sqrt[3]{x}\left[\frac{1}{3}x^{-\frac{2}{3}}\right] + \frac{1}{3}(\sin x)^{-\frac{2}{3}}\cos x$

$= \frac{\cos\sqrt[3]{x}}{3\sqrt[3]{x^2}} + \frac{\cos x}{3\sqrt[3]{\sin^2 x}}$

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