Math 1A

Chain Rule Challenge

Show all your work on engineering paper! No CAS! Each correct answer is 1 point extra credit for homework.

1. Find $\frac{dy}{dx}$ for each curve below.

a) $y = \dfrac{1}{(3x^5 - 5x + 9)^{-11}}$

b) $y = \sin\left(e^{\cos x}\right)$

c) $y = 3\tan^4(5x)$

d) $y = 2x^5 \cdot \tan^{-1}(\cos x) - \dfrac{3}{4}\log_8 x + e^{\sqrt{3x}}$

e) $\ln(x + y) = x^2 y + 5^{\pi}$

f) $y = \ln\left[\dfrac{\cos x}{(x^3 + 1)^2}\right]$

g) $y = \dfrac{x^4 \cdot \sin^2 x}{\sqrt{3x - 2}}$

h) $y = (\cos^{-1} x)^{\sqrt{x}}$

i) $y = 4^{5^{\sec x}}$

j) $y = \sqrt{x + \sqrt{x + \sqrt{x}}}$

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