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Model Card

Vocabulary	Process	Problem	Justification
slope of curve point = initial conditions equation	$F'(x) = 4xy$ $\frac{dy}{dx} = 4xy$ $\frac{dy}{y} = 4x\,dx$ $\int \frac{dy}{y} = 4\int x\,dx$ $\ln y = 2x^2 + C$ $e^{2x^2+C} = y$ $e^{2(0)^2+C} = 4$ $e^C = 4$ $\ln 4 = C$ $y = e^{2x^2} + \ln 4$ $y = e^{2x^2} \cdot e^{\ln 4}$ $\boxed{y = 4e^{2x^2}}$	At each point (x, y) on a certain curve, the slope of curve is $4xy$. If the curve contains the point $(0, 4)$, then its equation is...	When given the slope of a curve, that slope is the function's derivative. If a point is also given, there are initial conditions. To find the function, you must use a differential equation. You seperate the variables and solve for y. After that you solve for "c" using initial conditions. Using this, we solve for y using the solution of "c".