

Calculus I Quiz #7

Evaluate the derivatives and integrals. Solve the differential equations for y as a function of x .

Problem 1 $\int_{-1}^3 x^2 (x^3 + 6)^2 dx$

Problem 2 $\frac{dy}{dx} = \frac{3}{x}$

Problem 3 $\int_0^4 x \sqrt{16 - x^2} dx$

Problem 4 $\frac{dy}{dx} + x = 5, \quad y(4) = 6$

Problem 5 $\int_0^{\pi/4} \tan(x) dx$

Problem 6 $\frac{d^2 y}{dx^2} = \sin(3x)$

Problem 7 $\frac{d}{dx}(xe^{-x^2/2})$

Problem 8 $\int xe^{-x^2/2} dx$