

Quiz 03

Substitutions and Transformations

(8 points) After an appropriate substitution, the Bernoulli equation

$$\frac{dy}{dx} - \frac{3}{2x}y = 6y^{\frac{1}{3}}x^2 \ln(x)$$

becomes

- A. $\frac{du}{dx} - \frac{3}{2x}u = 4x^2 \ln(x)$ B. $\frac{du}{dx} - \frac{1}{x}u = 4x^2 \ln(x)$
C. $\frac{du}{dx} - \frac{3}{2x}u = 6x^2 \ln(x)$ D. $\frac{du}{dx} - \frac{1}{x}u = 6x^2 \ln(x)$

(12 points) Use the method for solving homogenous equations to solve the following differential equation.

$$(8x^2 - y^2)dx + (xy - 4x^3y^{-1})dy = 0$$

Please answer the question in complete sentences in a **clearly** prepared manuscript.
(**No credits** for the answer without necessary explanation.)

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Special number: _____ Name: _____
Section Number: _____ PUID: _____