

HOMEWORK 4 FOR MATH 2860 (ELEMENTARY DIFFERENTIAL EQUATIONS)

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Due at 10:00 EST in class

Question Q1. Solve the Bernoulli equation

$$y' = y(xy^3 - 1), \quad y(1) = 1.$$

Question Q2. Determine whether the differential equation

$$-y \, dx + (x + \sqrt{x+y}) \, dy = 0$$

is homogeneous. If it is, solve it. If not, state the reason why it is not.

Question Q3. Determine whether the differential equation

$$-y \, dx + (x + \sqrt{xy}) \, dy = 0$$

is homogeneous. If it is, solve it. If not, state the reason why it is not.

Show all your work.