

Quiz 5  
Name:  
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There are two questions. Show all relevant work. An answer in an implicit form will give a partial credit.

### Question 1

Find the general solution to the following differential equation:

$$\frac{dy}{dx} = x + \ln(x) + xy + \ln(x)y.$$

Assume that  $y > -1$ .

## Question 2

Solve the following differential equation with the given initial condition.

$$\frac{dy}{dx} = \frac{x^2}{y^2} + \frac{1}{y^2}, \quad y(0) = 1$$