

MAT 239 (Differential Equations), Prof. Swift
Worksheet 12 on Exact ODEs

1. Test if the following ODE's written in differential form are exact:

$3x^2ydx + x^3dy = 0$. Exact / Not Exact

$y^2dx + x^2dy = 0$. Exact / Not Exact

2. For each of the following, is the ODE equivalent to $\frac{dy}{dx} = \frac{y}{x}$? Then indicate if the original differential form of the ODE is exact.

$ydx - xdy = 0$.

Equivalent / Not equivalent

Exact / Not Exact

$\frac{1}{x}dx - \frac{1}{y}dy = 0$.

Equivalent / Not equivalent

Exact / Not Exact