

2.4 Exact Equations

Supplemental Instruction
Iowa State University

Leader: Kim C.

Course: Math 267

Instructor: Dr. D'Alessandro

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1. Determine whether the given differential equation is exact. If it is, solve it.

a. $(5x + 4y)dx + (4x - 8y^3)dy = 0$

b. $(x^2 - y^2)dx + (x^2 - 2xy)dy = 0$

c. $x \frac{dy}{dx} = 2xe^x - y + 6x^2$

d. $(2xy^2 - 3)dx + (2x^2y + 4)dy = 0$

e. $(y \ln y - e^{-xy})dx + \left(\frac{1}{y} + x \ln y\right)dy = 0$

f. $(2x + y)dx - (x + 6y)dy = 0$

g. $(2x - 1)dx + (3y + 7)dy = 0$