

4.1. {9, 10, 20, 28, 34}, 4.2. {6, 12}

Colley 4.1.9 In Exercises 8-15, find the first- and second-order Taylor polynomials for the given function f at the given point \mathbf{a} .

$$f(x, y) = 1/(x^2 + y^2 + 1), \mathbf{a} = (1, -1)$$

■

Colley 4.1.10 In Exercises 8-15, find the first- and second-order Taylor polynomials for the given function f at the given point \mathbf{a} .

$$f(x, y) = e^{2x+y}, \mathbf{a} = (0, 0)$$

■

Colley 4.1.20 In Exercises 16-20, calculate the Hessian matrix $Hf(\mathbf{a})$ for the indicated function f at the indicated point \mathbf{a} .

$$f(x, y, z) = e^{2x-3y} \sin 5z, \mathbf{a} = (0, 0, 0)$$

■

Colley 4.1.28 Determine the total differential of the functions given in Exercises 28-32.

$$f(x, y) = x^2 y^3$$

■

Colley 4.1.34 Near the point $(1, -2, 1)$, is the function $g(x, y, z) = x^3 - 2xy + x^2z + 7z$ most sensitive to changes in x , y , or z ?

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Colley 4.2.6 In Exercises 3-20, identify and determine the nature of the critical points of the given functions.

$$f(x, y) = y^4 - 2xy^2 + x^3 - x$$

■

Colley 4.2.12 In Exercises 3-20, identify and determine the nature of the critical points of the given functions.

$$f(x, y) = e^{-x}(x^2 + 3y^2)$$

■