

$$14. f(x, y) = x^4 - 7x^2y + y^3$$

$$f_x(x, y) = 4x^3 - 14xy$$

$$f_y(x, y) = -7x^2 + 3y^2$$

$$f_{xx} = 12x^2 - 14y \quad f_{xy} = \underline{\underline{-14x}}$$

$$f_{yy} = 6y \quad f_{yx} = \underline{\underline{-14x}}$$

$$15. f(x, y) = e^y \cos x$$

$$f_x = -e^y \sin x$$

$$f_y = e^y \cos x$$

$$f_{xx} = -e^y \cos x \quad f_{xy} = \underline{\underline{-e^y \sin x}} \quad f_{yy} = e^y \cos x \quad f_{yx} = \underline{\underline{-e^y \sin x}}$$

$$16. f(x, y) = 2x^2 + 5xy + 2y^2 + 2x - 2y$$

$$f_x = 4x + 5y + 2$$

$$f_y = 5x + 4y - 2$$

$$4x + 5y + 2 = 0$$

$$5x + 4y - 2 = 0$$

$$4x + 5y = -2$$

$$5x + 4y = 2$$

$$4x + 5y = -2 \quad \text{Br } -4$$

$$5x + 4y = 2 \quad \text{Br } 5$$

$$-16x - 20y = 8$$

$$\underline{\underline{25x + 20y = 10}}$$

$$9x = 18$$

$$\frac{9x}{9} = \frac{18}{9}$$

$$x = 2$$



$$4x + 5y = -2$$

$$4(2) + 5y = -2$$

$$8 + 5y = -2$$

$$5y = -2 - 8$$

$$5y = -10$$

$$\frac{5y}{5} = \frac{-10}{5}$$

$$y = -2$$

$$(2, -2)$$