

Name \_\_\_\_\_

Define

$$f(x, y) = xe^{y^2}$$

Calculate  $f_x$ ,  $f_y$ ,  $f_{xx}$ ,  $f_{xy}$ ,  $f_{yx}$ , and  $f_{yy}$ .**Solution**

$$f_x = e^{y^2}$$

$$f_y = 2xye^{y^2}$$

$$f_{xx} = 0$$

$$f_{xy} = 2ye^{y^2}$$

$$f_{yx} = 2ye^{y^2}$$

$$f_{yy} = 2ye^{y^2} + 4xy^2e^{y^2}$$