

14.2 Computing Partial Derivatives Algebraically

Name:

Date:

P 2. Find f_x and f_y if $f(x, y) = 5x^2y^3 + 8xy^2 - 3x^2$.

P 7. Find f_x and f_y if $f(x, y) = \ln(x^{0.6}y^{0.4})$.

P 25. Find $\frac{\partial}{\partial a} \left(\frac{1}{a} e^{-x^2/a^2} \right)$

P 37. Find $\frac{\partial Q}{\partial K}$ if $Q = c(a_1 K^{b_1} + a_2 L^{b_2})^Y$

P 44. Money in a bank account earns interest at a continuous rate, r . The amount of money, $\$B$, in the account depends on the amount deposited, $\$P$, and the time, t , it has been in the bank according to the formula

$$B = Pe^{rt}.$$

Find $\partial B/\partial t$ and $\partial B/\partial P$ and interpret each in financial terms.

P 52. Explain what is wrong with the statement “The partial derivative of $f(x, y) = x^2y^2$ is $2xy^3 + 3y^2x^2$.”

P 53. Explain what is wrong with the statement “For $f(x, y)$, if $\frac{f(0.01, 0) - f(0, 0)}{0.01} > 0$, then $f_x(0, 0) > 0$. ”