Partial Derivatives (Section 10) **Version B**
Rensselaer Calculus Skills Practice Page

No calculators will be allowed and no partial credit will be given.

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1. Find f_y given $f(x,y) = e^{x\,y^2} + 3\,y^2$.
2. Find f_y given $f(x,y) = -2\,\sin(x\,y)$.
3. Find $\dfrac{\partial f}{\partial y}$ given $f(x,y) = e^{x\,y^2} + 2\,x\,y$.
4. Find $\dfrac{\partial f}{\partial y}$ given $f(x,y) = -2\,\left(x\,y - x\,y^3\right)$.
5. Find $f_y\ (2,-1)$ given $f(x,y) = x\,y^3 + 2\,x^3$.
6. Find $\dfrac{\partial f}{\partial y}\ (1,0)$ given $f(x,y) = x\,y^3 - 2\,x\,e^{x\,y}$.
7. Find $f_y\ (\pi,0)$ given $f(x,y) = 4\,\cos(y+x)$.
8. Find $\dfrac{\partial f}{\partial x}\ (\pi,0)$ given $f(x,y) = -3\,\sin(2\,y+x)$.
9. Find f_y given $f(x,y,z) = z\,e^{y^2\,z} + x\,y^2\,z$.
10. Find f_x given $f(x,y,z) = \ln\left(x\,z^2 + y\,z\right)$.
11. Find $\dfrac{\partial f}{\partial z}$ given $f(x,y,z) = \sin\left(y\,z^2 + x\,z^2\right)$.

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Answer Key Rensselaer Calculus Skills Practice Page, Fall 2007

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1. $2\,x\,y\,e^{x\,y^2} + 6\,y$
2. $-2\,x\,\cos\left(x\,y\right)$
3. $2\,x\,y\,e^{x\,y^2} + 2\,x$
4. $-2\,\left(x - 3\,x\,y^2\right)$
5. 6
6. -2
7. 0
8. 3
9. $2\,y\,z^2\,e^{y^2\,z} + 2\,x\,y\,z$
10. $\dfrac{z^2}{x\,z^2 + y\,z}$
11. $\left(2\,y\,z + 2\,x\,z\right)\,\cos\left(y\,z^2 + x\,z^2\right)$