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Math 2030, Winter 2011, Quiz 5  
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No calculators needed or allowed.

Let  $f(x, y) = xy^2 + \frac{x}{y}$ . Compute the partial derivatives

1.  $f_x$
2.  $f_y$
3.  $f_{xx}$
4.  $f_{xy}$
5.  $f_{yy}$

Answers:

$$f(x, y) = xy^2 + xy^{-1}$$

$$1. f_x = y^2 + y^{-1} = y^2 + \frac{1}{y}$$

$$2. f_y = 2xy - xy^{-2} = 2xy - \frac{x}{y^2}$$

$$3. f_{xx} = 0 = 0$$

$$4. f_{xy} = 2y - y^{-2} = 2y - \frac{1}{y^2}$$

$$5. f_{yy} = 2x + 2xy^{-3} = 2x + \frac{2x}{y^3}$$