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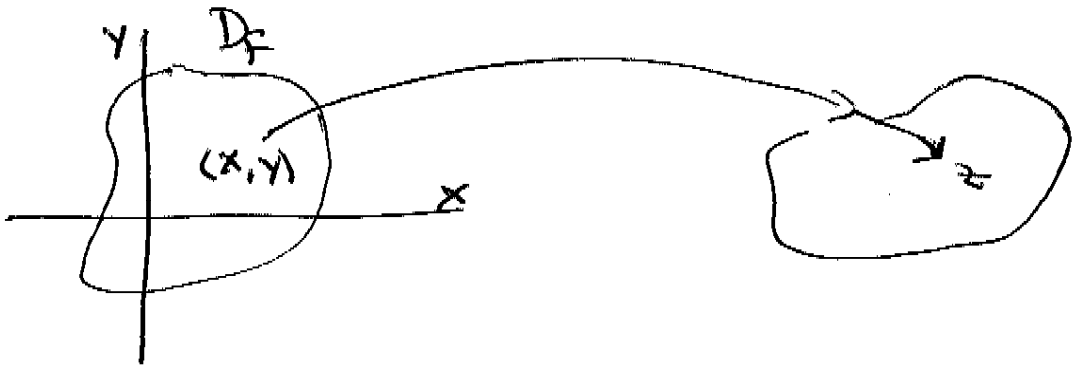
14.1: Functions of Several Variables

A fct $z = f(x,y)$ is a fct of two variables.



Ex1: Let $f(x,y) = x^2 e^{3xy}$

a) find $f(2,0)$

b) find D_f and R_f.

Ex2: Tabular representation of $z = f(x,y)$

TaxOwed (AGI, # of children).

Ex3: Sketch $f(x,y) = 1 - x - y$.

Ex4: ~~Ske~~ Plot $z = (x^2 + 3y^2) e^{-x^2-y^2}$

$$z = \frac{\sin(x)\sin(y)}{xy}$$

using Plot3D Live.

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Ex4: Topographical map. (web). < Hcc / Longmire

What would a contour plot for $z = 1 - x - y$ look like?

Ex5: Weather map (web)
the level curves are called isotherms.

Ex6: Use web Mathematica to plot the contour lines & do a 3D graph of $z = \dfrac{-3y}{x^2+y^2+1}$

Ex7: Find the domain of $f(x,y) = \sqrt{y-x}\,\ln(y+x)$

Ex8: Sketch a contour map of

a) $f(x,y) = y - \ln(x)$

b) $f(x,y) = \sqrt{x+y}$

c) $f(x,y) = x - y^2$