Math 251 Quiz 10 - February 10 PRINT Name_____
K.A. Pericak-Spector

Sketch the graph of the domain in the $x-y$ plane clearly labeling curves that define its boundary.

1. $f(x,y) = \sqrt{y-x^2}$

2. $f(x,y) = \dfrac{1}{\sqrt{4-x^2-y^2}}$

Show that the following limits do not exist.

3. $\lim_{(x,y)\to(0,0)} \dfrac{x^2}{x^2+y^3}$

4. $\lim_{(x,y)\to(0,0)} \dfrac{xy}{x^2+y^2}$

5. $\lim_{(x,y)\to(0,0,0)} \dfrac{xz}{x^2+y^2+z^2}$