

**King Fahd University of Petroleum & Minerals**  
**Department of Mathematics & Statistics**  
**MATH 201-05    Quiz # 2:**

Name:.....ID#.....

1) Sketch the surface  $x = z^2 + \frac{1}{4}y^2$  and name it.

2) Let

$$f(x, y) = \frac{x^2 + 3 \sin^2 y}{3x^2 + y^2}$$

a) Find the  $\lim_{(x,y) \rightarrow (0,0)} f(x, y)$  if it exists, or show that the limit does not exist.

b) Find  $\frac{\partial f}{\partial x}$  and  $\frac{\partial f}{\partial y}$