

### Quiz 3

Name: \_\_\_\_\_/Id: \_\_\_\_\_/Serial # \_\_\_\_Section \_\_\_\_\_

1) Identify the quadratic surface with equation  $x^2 - y^2 + z^2 - 4x - 2y - 2z + 4 = 0$

2) Let  $z = f(x, y)$ ,  $x = r \cos \theta$ ,  $y = r \sin \theta$ . Write down  $(\frac{\partial z}{\partial r})^2 + \frac{1}{r^2}(\frac{\partial z}{\partial \theta})^2$  in terms of  $\frac{\partial z}{\partial x}$   
and  $\frac{\partial z}{\partial y}$ .