

**DIRECTIONS** To receive full credit, you must provide complete legible solutions to the following problems in the space provided. No Attached papers. Transfer all your answers to the space provided.

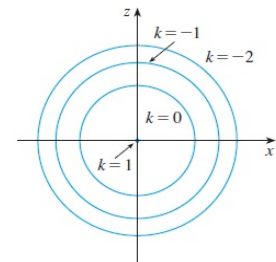
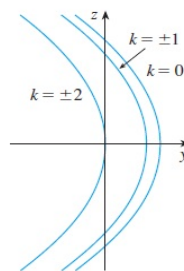
1. Produce traces of the surface parallel to the three standard axes then use traces to sketch the surface.

a.  $x^2 = 4y^2 + z^2$

b.  $y = 2x^2 + z^2$

c.  $z + x^2 = 5$

2. Sketch a quadric surface that could have the traces shown.



3. Consider the equation below. Reduce the equation to one of the standard forms, then classify the surface.

$$x^2 - y^2 + z^2 - 2x + 2y + 4z + 2 = 0$$

Ans \_\_\_\_\_

Ans \_\_\_\_\_

4. Sketch the region bounded by the surfaces  $z = x^2 + y^2$  and  $x^2 + y^2 = 1$  for  $1 \leq z \leq 2$ .

5. Find an equation for the surface obtained by rotating the line  $x = 3y$  about the x-axis..

Ans \_\_\_\_\_

6. Sketch traces of the given surface parallel to the yz-axes, then produce sketch of the surface on the xyz-coordinate system

$$z = \sin(y)$$