Quiz #4 (§§15.1 – §15.4) **Name:** _____
MA 234-02 **9 February 1993**

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1. Let $f(x, y) = \sqrt{16 - 4x^2 + y^2}$.
   (a) Determine the domain of $f(x, y)$ and sketch the graph of the domain in the xy-plane using the left set of axes. *(4 points)*
   (b) Graph (on the right set of axes) the level curves corresponding to $z = 0$, $z = 4$, and $z = 5$. Label each curve. *(4 points)*

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2. Identify by name the following quadric surfaces: *(5 points)*
   (a) $x = y^2 + z^2$ . . . . . _____
   (b) $x^2 + y^2 = 1 + z^2$ . . . . . _____
   (c) $x^2 - y^2 = z$ . . . . . _____
   (d) $1 + x^2 + y^2 = z^2$ . . . . . _____
   (e) $x^2 + y^2 - z^2 = 0$ . . . . . _____

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3. Let $f(x, y) = \displaystyle\int_x^y \sin u^2 \, du$. Compute $\dfrac{\partial f}{\partial x}$ and $\dfrac{\partial f}{\partial y}$. *(7 points)*