The following problem set is split into three parts: the recommended practice problems, which are not to be handed in; the quiz practice problems, which form the basis for the upcoming quiz, and the homework problems, which will be handed in.

**Recommended Practice**
These problems are not to be handed in or graded (unless they are repeated below). They are recommended for your practice only.

1. Section 10.1: # 1, 3, 5, 6, 8, 18, 19, 20, 21-35, 38
2. Section 10.2: # 2-4, 7, 10, 14, 17, 18, 19, 24-26, 32, 34, 35

**Quiz Practice Problems**
The problems on Quiz 1 (Thursday, Jan. 21) will be selected from the following problem set, but may be slightly modified for the quiz. During the quiz, no notes, books, calculators or other aides will be allowed (only writing utensils). Leave any numerical responses in calculator-ready form.

1. Section 10.1: # 3, 8, 10, 12, 31-34
2. Section 10.2: # 13, 15, 17, 19, 21

**Homework Problems**
The solutions to the following problems are due to be handed in at the beginning of your discussion session on Thursday, Jan. 21.

1. Section 10.1 #20
2. Section 10.1 #38
3. Consider the region in $\mathbb{R}^3$ given by the equation $y - x^2 - z^2 - 1 = 0$, with $y \leq 5$. Using the same 3D-coordinate axes, sketch the following:
   (a) The intersection of this region with $xy$-plane.
   (b) The intersection of this region with $yz$-plane.
   (c) The intersection of this region with each of the planes $y = 1$, $y = 2$, $y = 3$, $y = 4$, $y = 5$.
   (d) Would you describe this region as a surface or a solid? Explain.
4. Section 10.2 #18
5. Section 10.2 #33