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.

- Section 10.5: All problems.
- Section 10.6: All problems except for 21-28.
- Section 10.7: # 1-30. (More problems will be included in the next set.)

**Quiz Practice Problems**
The problems on Quiz 3 (Thursday, Feb. 5) 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 10.5: # 1, 2, 4, 5, 7-12, 14, 15, 21-25, 27, 29, 31, 33, 44
2. Section 10.6: # 7, 8, 11-20, 29, 30
3. Section 10.7: # 5-8, 10, 12, 13, 17-22

**Homework Problems**
The solutions to the following problems are due to be handed in at the beginning of your discussion session on Thursday, Feb. 5.

1. Section 10.5 # 42
2. (a) Read Example 7 in Chapter 10, which discusses the *distance from a point to a plane.*
   (b) Section 10.5 # 50
   (c) Find the coordinates of the point on the plane \(x - 2y - 4z = 8\) that is closest to \((-6, 3, 5)\). (This is the same point and same plane from part b.)
3. Two *planes* are said to be parallel whenever their normal vectors are parallel.
   (a) Describe the region of intersection of two parallel planes.
   (b) Section 10.5 # 46
   (c) How would you define the *distance between two parallel planes?*
   (d) Section 10.5 # 52
4. The *angle between two non-parallel planes* is defined to be the angle between their normal vectors. Complete Section 10.5 # 35-38.
5. Section 10.5 # 56 (*Hint: The skew lines lie in parallel planes.)*
6. Section 10.6 # 32
7. Section 10.6 # 34