MONT 106N – Identifying Patterns
Individual Worksheet on Computing Normal Curve Areas
September 25, 2009

Background and Goals

The table of normal curve areas from page A-104 of the text gives the area under the normal curve between $-z$ and z in standard units for various z. Because of the *symmetry about* 0 of the normal curve, it is possible to use this table to find many other types of areas as well. You have 30 minutes to work, then we will "reconvene" and compare notes. *Turn over for B.*

A. Draw the picture, and find the area under the normal curve in each case described below:

   1. Area to the right of $z = 1.4$.

   2. Area to the right of $z = -1$.

   3. Area between $z = 1.1$ and $z = 2.1$.

   4. Area between $z = -.8$ and $z = 1.5$.

B. Draw a representative picture for each case. Then describe how you would go about computing each of the following kinds of normal curve areas *in general*. You may assume that a, b are z-values that are found in the table – no interpolation will be necessary.

1. The area to the right of $z = a$ where a is strictly bigger than 0.

2. The area to the right of $z = a$ where a is strictly less than 0.

3. The area between $z = a$ and $z = b$ if a, b are positive and $a < b$.

4. The area between $z = a$ and $z = b$ if a is negative but b is positive.

5. The area to the left of $z = a$ where a is negative.

Comment on B. Even though you might be tempted to try to memorize the processes you described in question B, I *do not recommend* that you do that. It is much easier to draw the picture and think through what you need to do each time you need to find one of these, letting the information in the figure guide you.