**The Normal Distribution**

Instructions: Calculate each probability by referring to the Z-table in the appendix of the book. Sketch the areas described by each probability on the corresponding handout. Recal the probability of observing a value less than *z* is interpreted graphically as the area underneath the bell curve to the left of z.

1.

2.

3.

4. Find the 95th Percentile of the standard normal distribution, i.e. find the *Z-score* such that

5. Find the 25th Percentile of the standard normal distribution, i.e. find the *Z-score* such that

Instructions: Calculate each probability by *standardizing the X – score into a Z-score through the formula .* Then reference the Z-Table in the appendix of the book. Sketch the areas described by each probability on the corresponding handout.

6. Let **X** represent a normal random variable drawn from a population with and . Using only a normal table (no Excel functions!), calculate the following probabilities concerning this distribution by standardizing:

a.

b.

c.

d. Find the 80th Percentileof this distribution, i.e. find the *X-score* such that

7. Repeat 1 – 6# using the **normalCDF** and **invNorm** functions on your TI calculator. Refer to the second accompanying handout on the Normal functions on the TI-84/TI-83 for more information on how to use these functions. Verify your answer agrees to at least three decimal points. d