1016-351-70
Probability

Problem Set 6

Assigned 2010 April 20
Due 2010 April 27

Show your work on all problems!

1 Devore Chapter 4, Problem 60

2 Devore Chapter 4, Problem 66

3 Devore Chapter 4, Problem 71

4 Devore Chapter 4, Problem 80

5 Computational Exercise (Extra Credit)

Download the two data sets for this problem from
`http://ccrg.rit.edu/~whelan/courses/2010_1sp_1016_351/data/ps06_prob5_set1.dat`
and
`http://ccrg.rit.edu/~whelan/courses/2010_1sp_1016_351/data/ps06_prob5_set2.dat`
using the credentials given in class.

For each dataset, construct a normal probability plot by sorting the data into ascending order
and plotting $z_{1-(i-.5)/n}$ vs x_i, where n is the number of points in the dataset, $i = 1 \ldots n$, x_i is the
ith datapoint in the sorted set, and z_α is defined as usual by $\Phi(z_\alpha) = 1 - \alpha$. You may find it useful
to construct a function which uses the inverse error function to calculate z_α for a given α; e.g., in
scipy/matplotlib, you can use

```
from scipy.special import erfinv
def zscore(Phi):
    return np.sqrt(2) * erfinv( 2.0 * Phi - 1.0 )
```