Homework 3

1. Complete the R exercise. All the code is provided; be sure to explain how each of the steps worked for you.

2. Answer the following questions using the example in 5.17. You may use **punif** in **R** to assist with calculations if you wish.

   (a) 5.17b

   (b) 5.17c

   (c) Find $P(X \geq 7.2)$

   (d) 5.17e

   (e) Find $P(6.75 \leq X \leq 7.2)$

   (f) (Graduate students only). 5.17g. This is a binomial experiment, and the probability you are asked to calculate will serve as the binomial parameter p.

3. Answer the following questions using the example in 5.26. Use the method of your choice except where otherwise indicated.

   (a) 5.26a (Use Table II)

   (b) $P(z < 1.51)$ (Use **R**)

   (c) $P(-0.40 \leq z < 1.96)$ (Use Table II)

   (d) $P(-0.40 < z \leq 1.96)$. Compare to your answer in 3(c) and discuss.

   (e) $P(z < 1.4)$ and $P(z > -1.4)$. Explain the result.

4. Answer the following questions using the examples in 5.28 and 5.29.

   (a) Find z_0 so that $P(0 < z < z_0) = 0.4656$

   (b) Find z_0 so that $P(z < z_0) = 0.9515$

   (c) Find z_0 so that $P(z < z_0) = 0.0485$. Compare your result to 4(b) and explain.

   (d) Find z_0 so that $P(-z_0 < z < z_0) = 0.3182$

5. Answer the following questions related to the example in 5.42

   (a) How likely are you to capture a turtle below the minimum size limit of 40 cm? Above the maximum size limit of 60?

   (b) What minimum size limit should be set so that 90% of turtles have shell lengths greater than the limit? So that 99% of turtles have shell lengths greater than the limit?

   (c) Calculate lower and upper limits so that turtles have a 95% chance of falling in between these limits.

6. Use the data in 5.68 to construct a normal probability plot in the statistical package of your choice. Are the data approximately normal?