AMS 394 Homework 1 R basics

1. Consider the following heights 1.55, 1.92, 1.60, 1.75, 1.58, 1.67, 1.63, 1.82, 1.76, 1.77, 1.72, 1.85. Use R script to finish the following questions
   (1)Assign all these heights as vector "height".
   (2)Compute the mean and sd of "height".
   (3)What is the length of "height"?
   (4)How many heights are less than 1.65?
   (5)Show if each height is larger than 1.60 and smaller than 1.75.

2. Use the following script, we can generate a 3x4 matrix
   tmp <- matrix(rnorm(12), 3, 4)
   Answer the floowing questions.
   (1)Compute the sum of the second and third row.
   (2)Compute the product of second and fourth column.
   (3)Show the dimension of the matrix.
   (4)Use "cat" function to output elements in the second row that are less than 0.2.

3. Write the logical expression to extract blood.glucose greater than 10 and short.velocity greater than 1.5 in the "thuesen" data set, which is in the package "ISwR".

4. Generate 15 random integers that are uniformly distributed between 1 and 80(1 and 80 included).

5. (1)Use "sample" function to generate a random vector that follows a multinomial distribution with probability (0.2, 0.3, 0.5)
   (2)Without use the sample function, generate a random vector that follows a multinomial distribution with probability (0.2, 0.3, 0.5).
   Hint: Using runif (or rbinom) and loop. Please write several lines of R scripts to simulate a multinomial distribution with probability (0.2, 0.3, 0.5).