AMS 394 Homework 2 Probability Distribution

1. Calculate the probability for each of the following events:
   (1)A normally distributed variable with mean 15 and standard deviation 3 is less than 16.
   (2)$X < 8$ in a chi-square distribution with 10 degrees of freedom.
   (3)Getting 5 out of 10 successes in a binomial distribution with probability 0.4.
   (4)$X = 5$ in a Poisson distribution with λ is 3.

2. Contruct the following table that summarizes the number of people who have car accidents in a school.(Hint: Age and Accidents are dimension names, not column or row names)

	Accidents	
Age	Yes	No
18-20	25	121
21-23	18	92
24-25	13	130
>25	6	87

3. Generate 100 exponentially distributed random variables with rate 2, and plot their empirical distribution function.

4. Use following script, we can generate 50 random sample following standard normal distribution.
   x <- rnorm(50)
   Generate a multi-paneled plot with one row and two columns. Draw a boxplot for x on the left part, and a boxplot for log(abs(x)) on the right part.

5. (1)Plot a histgram for the "react" data set in the ISwR package.
   (2) Try "truehist" function from the MASS package as a replacement of "hist" function.